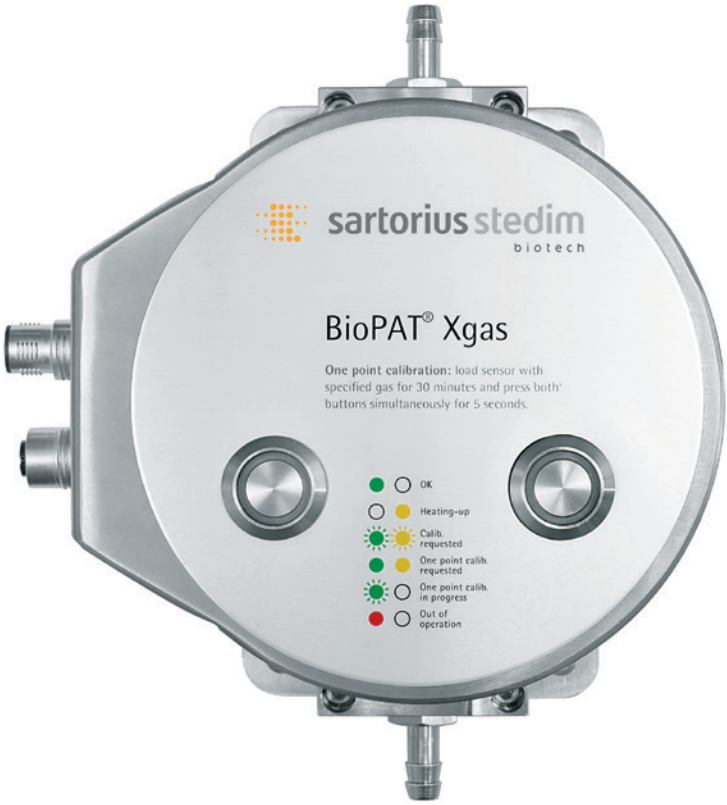
sartorius stedim biotech

Operating Manual

BioPAT® Xgas Vis

Software Manual


sartorius stedim
biotech
BioPAT® Xgas
One point calibration: load sensor with specified gas for 30 minutes and press both buttons simultaneously for 5 seconds.
OK
Heating-up
Calib. requested
One point calib. requested
One point calib. in progress
Out of operation

85037-545-79

Contents

1. About This Document 4
1.1 Accompanying Documents 4
1.2 Symbols Used 4

2. Safety Information 5
2.1 General Safety Precautions 5
2.2 Intended Use and Foreseeable Misuse 5

3. Overview 6
3.1 Requirements 6
3.2 Contents of Delivery 6

4. Installation 7
4.1 Installation Steps 7
4.2 Hardware Installation 8

5. Software Installation 10
5.1 Preparation Steps 10
5.2 BioPAT® Xgas Vis Software 15
5.3 Perle Device Driver 20
5.4 TruePort Application 24

6. Hardware Settings 27
6.1 Checking Jumper Settings at the Perle Device 27
6.2 Reseting Perle Device 28

7. Configuration 29
7.1 Perle Device 29
7.2 Serial Port 36
7.2.1 Configuring Serial Port with TruePort Management Tool 36
7.2.2 Configuring Serial Port with Device Manager 40
7.3 BioPAT® Xgas Vis OPC License 42
7.4 BioPAT® Xgas Sensor 44
7.4.1 Configuring One Sensor 44
7.4.2 Configuring Multiple Sensors with one Ethernet Modbus Converter . . . 49
7.5 Changing the Modbus Address 50

8. Installation of BioPAT® Xgas OPC Server 52
8.1 Installing MFCS/win OPC Client 53
8.2 Configuring MFCS/win Configuration Management 53
8.3 Browsing the BIOPATXGAS.OPC.1 Server with OPC Test Client 62

9. Firmware Version 65
9.1 Checking / Upgrading Firmware Version of the Perle Device 65
9.2 Configuring Settings for Windows ModbusService 69

10. Troubleshooting 71

1. About This Document

All information and instructions in this operating manual have been compiled in consideration of applicable standards and guidelines, the state of technology and our many years of experience and knowledge.

These operating instructions provide you with all the information necessary to install and to configure the BioPAT® Xgas Vis Software.

In addition to the operating manual, all generally valid, legal and otherwise binding regulations for accident protection and environmental protection of the country of use must be observed.

The operating manual must always be kept at the place of use of the device.

1.1 Accompanying Documents

The operating manual describes how to install and to configure the BioPAT® Xgas Vis Software.

In addition to these operating instructions, follow the information in the operating manual "BioPAT® Xgas" and in the documentation of the other software and hardware components.

1.2 Symbols Used

This symbol
- is an indication of a function or setting on the device.
- is an indication that caution should be exercised while working.
- identifies useful information.

The following presentations will also be used:

– Texts that follow this mark are lists.

▶ Texts that follow this mark describe activities that must be carried out in the specified order.

▷ Texts that follow this mark describe the result of an action.

" " Texts in quotes are references to other chapters or sections.

[➡] Texts following this symbol make reference to other chapters, sections or documents.

2. Safety Information

2.1 General Safety Precautions

The BioPAT® Xgas Vis Software may only be installed and configured after gaining familiarity with this operating manual.

Always keep the operating manual in the location where the device is in use.

In addition to the operating manual, follow all general and local regulations for accident prevention and environmental protection.

2.2 Intended Use and Foreseeable Misuse

The operational safety of the device is only ensured when it is used for its intended purpose and operated by trained personnel.

Application

The device is only intended for industrial, commercial, training, and research facilities.

The BioPAT® Xgas Vis Software is intended for use with the BioPAT® Xgas Sensor and the BioPAT® MFCS/win Software.

3. Overview

With the BioPAT® Xgas hardware, the O_2 and CO_2 concentration can be monitored and controlled for any given bioprocesses in real time.

The BioPAT® Xgas is a dual oxygen-carbon dioxide sensor featuring automatic compensation for humidity and pressure. The oxygen concentration can be measured in a range of 1–50 % and the carbon dioxide concentration in a range of 0–10 %.

The BioPAT® Xgas Sensor can be directly connected by analog signals to the DCU system. Therefore, only a cable and two free analog input ports at the DCU systems need to be available.

Alternatively, if there are no available analog input ports on the DCU system, then it is possible to connect the BioPAT® Xgas hardware using the BioPAT® Xgas Vis Software interfacing to the MFCS/win SCADA software. Herein, the direct connection of the BioPAT® Xgas Sensors to the MFCS/win software with all necessary hardware and software components is described.

3.1 Requirements

- The BioPAT® Xgas Vis Software requires MFCS/win Version 3.0
- The Firmware version of the used Perle device is minimum 4.5

Computer Configuration

General	CD ROM drive
	USB Port
Operating System	Microsoft Windows XP (32 bit)
	Microsoft Windows Server 2003 R2 (32 bit & 64 bit)
	Microsoft Windows 7 (32 bit & 64 bit)
	Microsoft Windows Server 2008 SP2 (32 bit & 64 bit)
	Microsoft Windows Server 2008 R2 Sp1 64 bit
Operating System Language	English, German

3.2 Contents of Delivery

The delivery of the BioPAT® Xgas Vis Software contains the following components:

- CD-ROM, containing all necessary software items
- Software activation Dongle
- User Manual for the BioPAT Xgas Vis

4. Installation

4.1 Installation Steps

The following table presents an overview on the necessary steps to install and configure the BioPAT® Xgas Vis Software. Please follow the recommended order in the table step by step. Each entry refers to a separate chapter or sub-chapter in this handbook where the procedure is described in detail.

Step	Installation Procedure	Remark
0	Hardware installation [➡ 4.2, page 8]	
1	Preparation step for installation on Windows XP and Windows Server 2008, only [➡ 5.1, page 10]	Only for Windows XP and Windows Server 2008
2	Software installation of BioPAT® Xgas Vis Software [➡ 5.2, page 15]	
3	Installation and configuration of the Perle device driver [➡ 5.3, page 20]	
4	Installation of TruePort application [➡ 5.4, page 24]	
5	Checking hardware jumper settings at the Perle device [➡ 6.1, page 27]	
6	Reset Perle device [➡ 6.2, page 28]	
7	Configure Perle device [➡ 7.1, page 29]	
8	Configure serial port with TruePort Management Tool [➡ 7.2.1, page 36]	
9	Configure serial port with Device Manager [➡ 7.2.2, page 40]	
10	Activate the BioPAT® Xgas Vis OPC License [➡ 7.3, page 42]	
11	Configuration of one BioPAT® Xgas sensor [➡ 7.4.1, page 44]	
12	Configuration of multiple sensors with one Ethernet Modbus Converter [➡ 7.4.2, page 49]	
13	How to change the Modbus Address [➡ 7.5, page 50]	Multiple sensors only
14	Installation of BioPAT® Xgas OPC Server [➡ 8, page 52]	
15	Installation of MFCS/win OPC Client [➡ 8.1, page 53]	

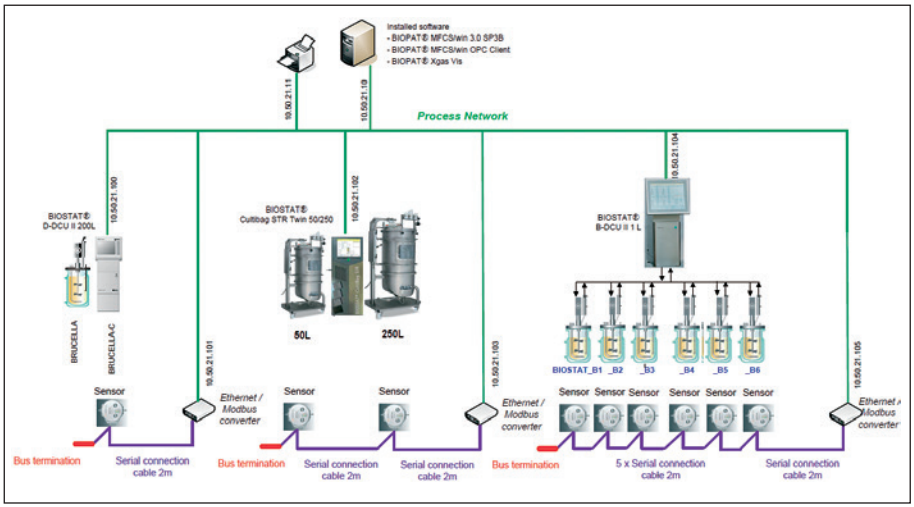
Step	Installation Procedure	Remark
16	Configuration work inside MFCS/win Configuration Management [➡ 8.2, page 53]	
17	How to browse the BIOPATXGA.OPC.1 Server with OPC Test Client [➡ 8.3, page 62]	Optional
18	How to check / upgrade the firmware version of the Perle device [➡ 9.1, page 65]	Update only necessary, if firmware < 4.5
19	Configure settings for Windows Modbus Service [➡ 9.2, page 69]	

4.2 Hardware Installation

▶ Install the BioPAT® Xgas according the operating manual "BioPAT® Xgas", delivered together with the BioPAT® Xgas hardware.

– The installation is described in chapter "4. Installation".

As the sensors require a startup heating time of approximately 60 min, it is recommended to do the steps described under "4.3.5 Startup" in an early stage.



Connection of BioPAT® Xgas to BioPAT® MFCS/win with BioPAT® Xgas Vis Software

Accessories

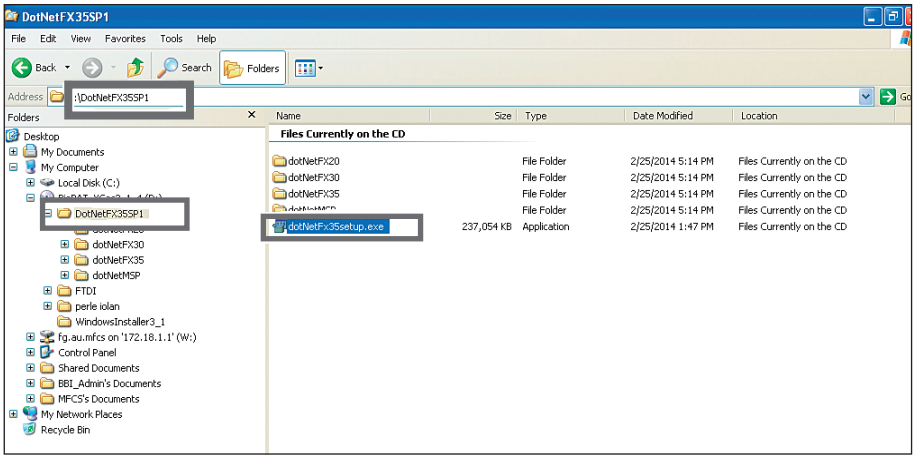
The following articles are available for the BioPAT Xgas Vis Software:

Article Number	Description	Remark
BPX0009	BioPAT® Xgas Vis Software	Can be used with one MFCS/win server system.
BPX00(11-15)	BioPAT® Xgas Sensor	Includes power supply & cable and article number depends on vessel size and corresponding gas flow path.
BPX0018	PC connection package (includes Ethernet / Modbus converter and Bus termination)	One is needed for each DCU system or independent vessel fitted with BioPAT® Xgas [see figure in chapter ➡ 6.2, page 28].
BB-34147295	Serial Modbus Connection cable 2 m	One cable (2 m or 5 m) is needed to connect each sequential BioPAT® Xgas unit.
BB-34147298	Serial Modbus Connection cable 5 m	

5. Software Installation

5.1 Preparation Steps

For Windows XP, only

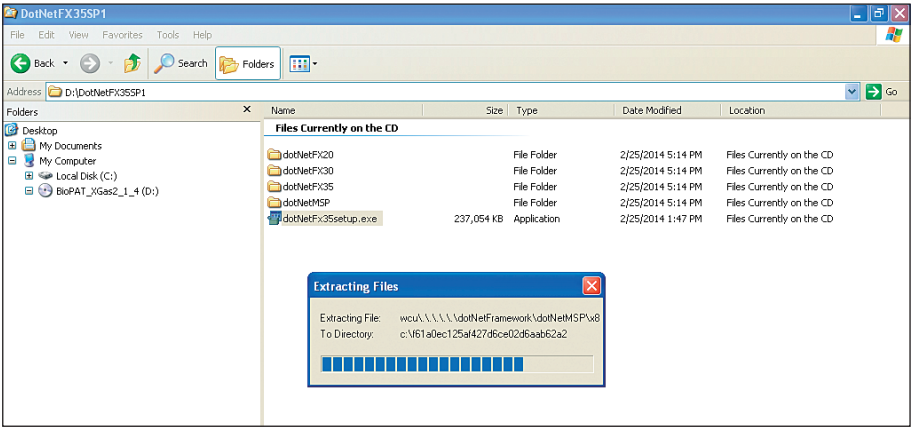


▶ Start :\DotNetFX35SP1\dotNetFx35setup.exe from the XGAS-CD

NET Framework 3.5.1 must be installed manually from the BioPAT Xgas VIS CD.

▶ Open Windows Explorer and browse to the CD into the directory.

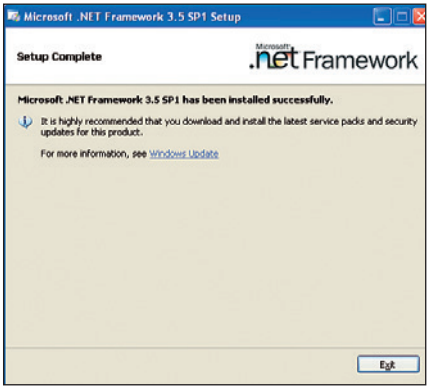
▶ Double click the file „:\DotNetFX35SP1\dotNetFx35setup.exe"


DotNetFX35SP1
File Edit View Favorites Tools Help
Back Search Folders
Address D:\DotNetFX35SP1
Go
Folders
Desktop
My Documents
My Computer
Local Disk (C:)
BioPAT_XGas2_1_4 (D:)
Name Size Type Date Modified Location
Files Currently on the CD
dotNetFX20 File Folder 2/25/2014 5:14 PM Files Currently on the CD
dotNetFX30 File Folder 2/25/2014 5:14 PM Files Currently on the CD
dotNetFX35 File Folder 2/25/2014 5:14 PM Files Currently on the CD
dotNetMSP File Folder 2/25/2014 5:14 PM Files Currently on the CD
dotNetFx35setup.exe 237,054 KB Application 2/25/2014 1:47 PM Files Currently on the CD
Extracting Files
Extracting File: wcu\.\.\.\.\dotNetFramework\dotNetMSP\x8
To Directory: c:\f61a0ec125af427d6ce02d6aab62a2

▶ Files will be extracted.

▶ Accept the terms and press “Install” button.

Microsoft .NET Framework 3.5 SP1 Setup
Welcome to Setup
.net Framework
Be sure to carefully read and understand all the rights and restrictions described in the license terms. You must accept the license terms before you can install the software.
MICROSOFT SOFTWARE SUPPLEMENTAL
Press the Page Down key to see more text.
Print
I have read and ACCEPT the terms of the License Agreement
I DO NOT ACCEPT the terms of the License Agreement
Send information about my setup experiences to Microsoft Corporation.
Details regarding the data collection policy
Download File Size: 10 MB
Download Time Estimate: 24 min (56 kbps)
2 min (512 kbps)
Install >
Cancel


Microsoft .NET Framework 3.5 SP1 Setup
Setup Complete
.net Framework
Microsoft .NET Framework 3.5 SP1 has been installed successfully.
It is highly recommended that you download and install the latest service packs and security updates for this product.
For more information, see Windows Update
Exit

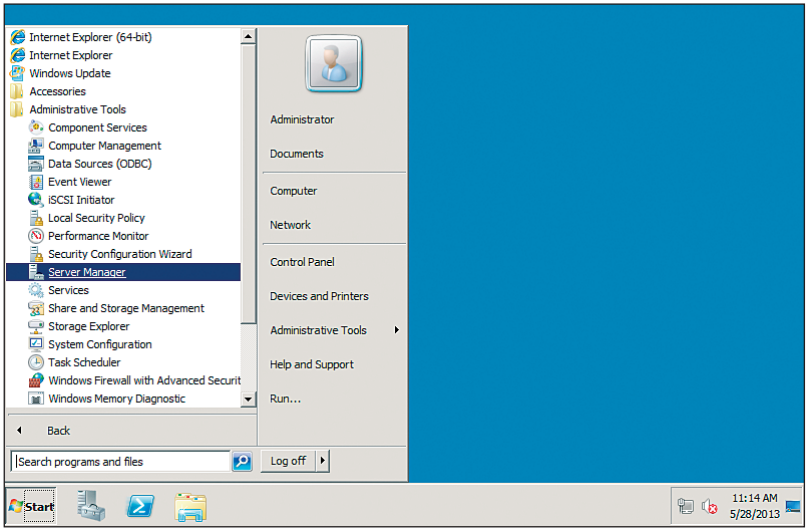
▶ Press “Exit” button.

▶ Continue with chapter [➡ 5.2, page 15].

For Windows Server 2008 R2, only

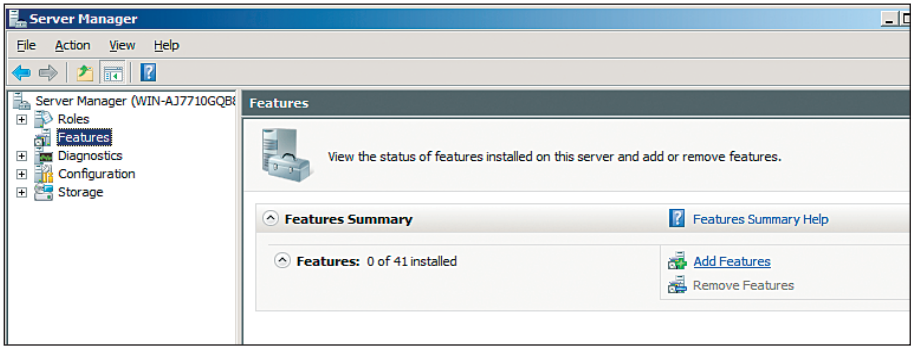
.NET Framework 3.5.1 must be activated for Windows Server 2008.
– Windows Server 2008 includes the necessary .Net framework.

Follow the steps below in order to activate the .Net framework.



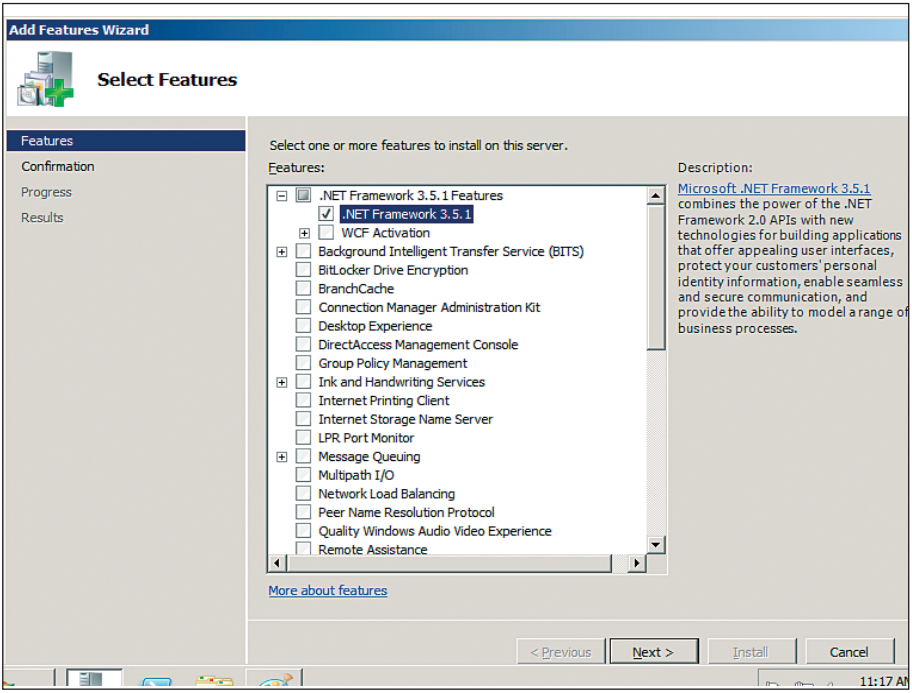
▶ Go to "Administrative Tools".

▶ Start the "Server Manager".

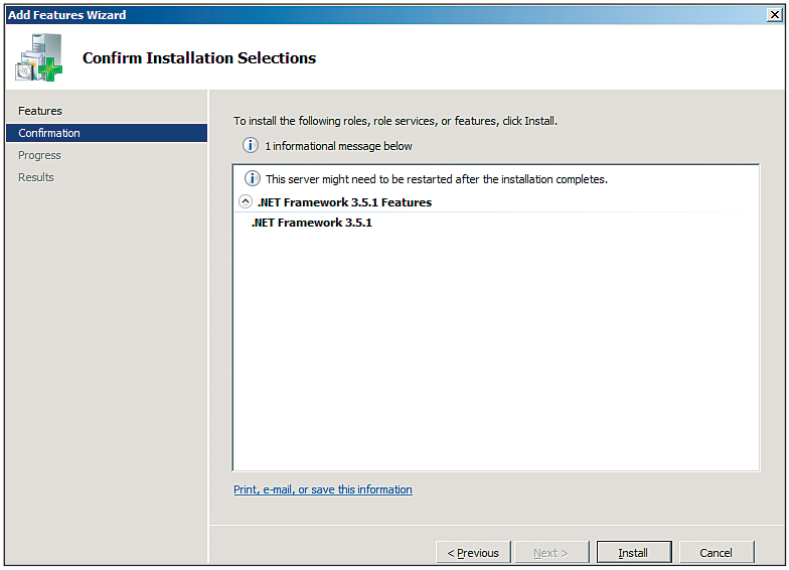


▶ Open "Roles / Features".

▶ Click "Add Features".

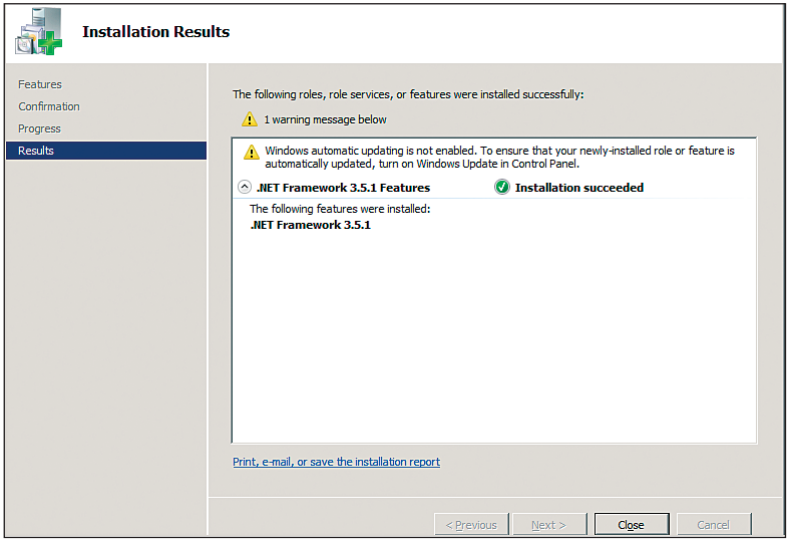

Add Features Wizard
Select Features
Features
Confirmation
Progress
Results
Select one or more features to install on this server.
Features:
.NET Framework 3.5.1 Features
.NET Framework 3.5.1
WCF Activation
Background Intelligent Transfer Service (BITS)
BitLocker Drive Encryption
BranchCache
Connection Manager Administration Kit
Desktop Experience
DirectAccess Management Console
Group Policy Management
Ink and Handwriting Services
Internet Printing Client
Internet Storage Name Server
LPR Port Monitor
Message Queuing
Multipath I/O
Network Load Balancing
Peer Name Resolution Protocol
Quality Windows Audio Video Experience
Remote Assistance
More about features
Description:
Microsoft .NET Framework 3.5.1 combines the power of the .NET Framework 2.0 APIs with new technologies for building applications that offer appealing user interfaces, protect your customers' personal identity information, enable seamless and secure communication, and provide the ability to model a range of business processes.
< Previous
Next >
Install
Cancel

- ▶ Expand ".NET Framework 3.5.1 Features".
- ▶ Select ".NET Framework 3.5.1".
- ▶ Click on the "Next" button.



▷ "Confirm Installation Selection" opens.

▶ Press button "Install".


Installation Results
Features
Confirmation
Progress
Results
The following roles, role services, or features were installed successfully:
1 warning message below
Windows automatic updating is not enabled. To ensure that your newly-installed role or feature is automatically updated, turn on Windows Update in Control Panel.
.NET Framework 3.5.1 Features
Installation succeeded
The following features were installed:
.NET Framework 3.5.1
Print, e-mail, or save the installation report
< Previous
Next >
Close
Cancel

▷ The installation is completed; the installation message "Installation succeeded" is displayed.

▶ Click „Close" button.

5.2 BioPAT® Xgas Vis Software

This chapter describes the installation of the BioPAT® Xgas Vis Software.

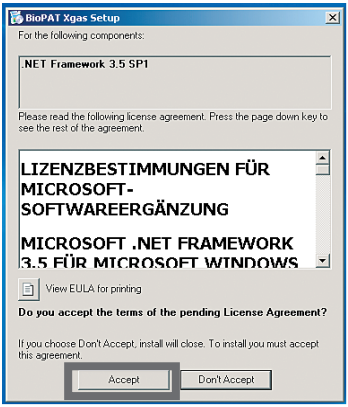
Please consider that MFCS/win must have been already installed.
Please note, the installation of this software requires local administrative rights.

The CD-ROM containing the BioPAT® Xgas Vis Software is labeled as "BioPAT® Xgas Vis Software". A separate program named SETUP.EXE performs the software installation.

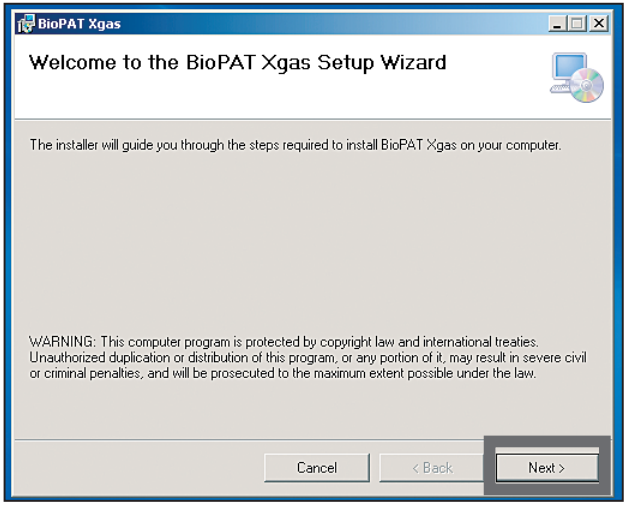
The following steps describe the installation on your computer system.

Installing the BioPAT® Xgas Vis Software

- Shutdown the MFCS/win system from the MFCS/win Shell.
- Insert the CD-ROM into the CD drive.
- Open the windows explorer and change to the CD drive.
- Double-click on file SETUP.EXE to start the installation program.
- If the ".Net Framework 3.5" is not installed, then the following dialog will be shown on the screen.

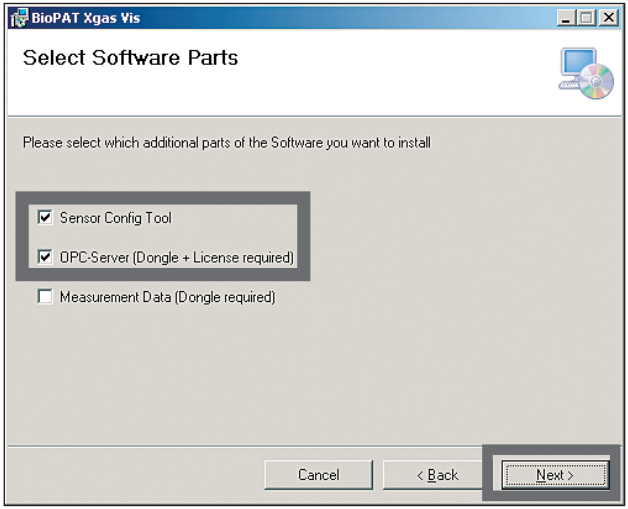

BioPAT Xgas Setup
For the following components:
.NET Framework 3.5 SP1
Please read the following license agreement. Press the page down key to see the rest of the agreement.
LIZENZBESTIMMUNGEN FÜR MICROSOFT-SOFTWAREERGÄNZUNG
MICROSOFT .NET FRAMEWORK 3.5 FÜR MICROSOFT WINDOWS
View EULA for printing
Do you accept the terms of the pending License Agreement?
If you choose Don't Accept, install will close. To install you must accept this agreement.
Accept
Don't Accept

- Press the button "Accept" to continue.


BioPAT Xgas
Welcome to the BioPAT Xgas Setup Wizard
The installer will guide you through the steps required to install BioPAT Xgas on your computer.
WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.
Cancel
< Back
Next >

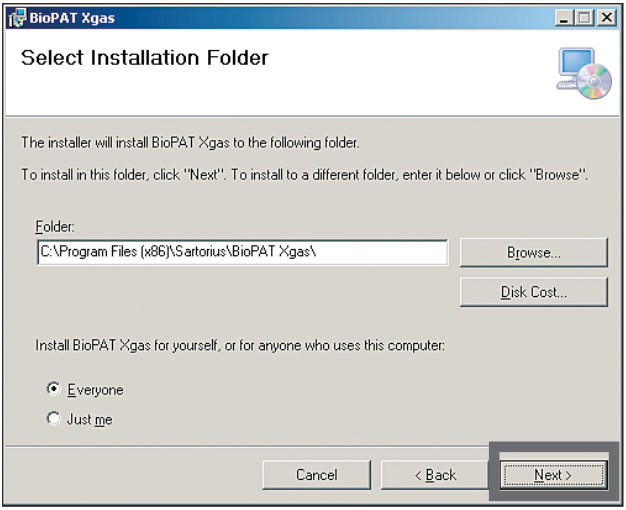
▶ The welcome screen is shown.

▶ Press button “Next”.

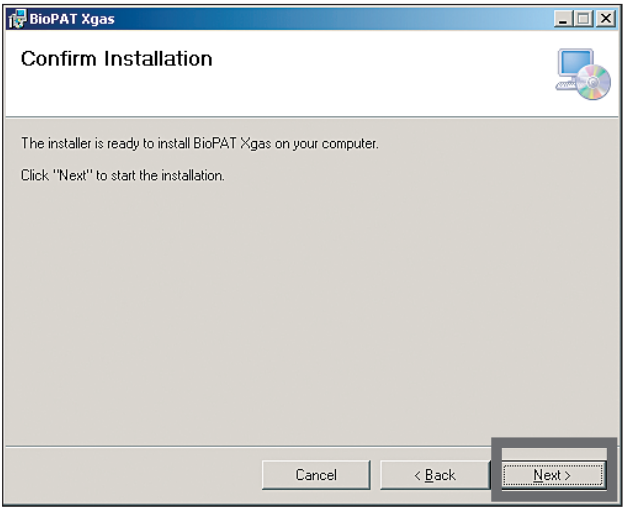

BioPAT Xgas Vis
Select Software Parts
Please select which additional parts of the Software you want to install
Sensor Config Tool
OPC-Server (Dongle + License required)
Measurement Data (Dongle required)
Cancel
< Back
Next >

▶ Keep the default settings as shown in the picture.

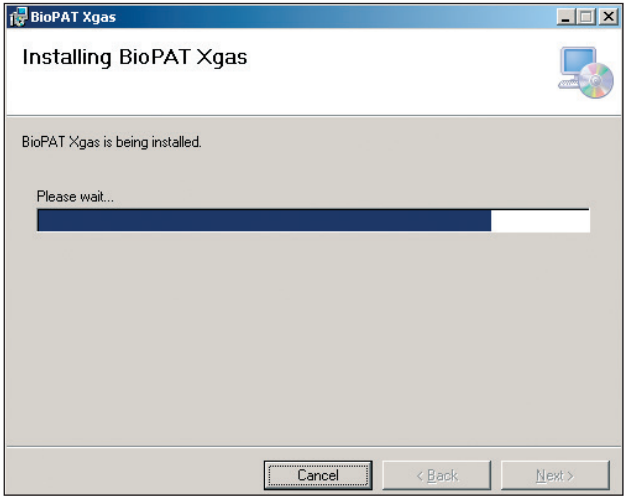
▶ Press button “Next”.


BioPAT Xgas
Select Installation Folder
The installer will install BioPAT Xgas to the following folder.
To install in this folder, click "Next". To install to a different folder, enter it below or click "Browse".
Folder:
C:\Program Files (x86)\Sartorius\BioPAT Xgas\
Browse...
Disk Cost...
Install BioPAT Xgas for yourself, or for anyone who uses this computer:
Everyone
Just me
Cancel
< Back
Next >

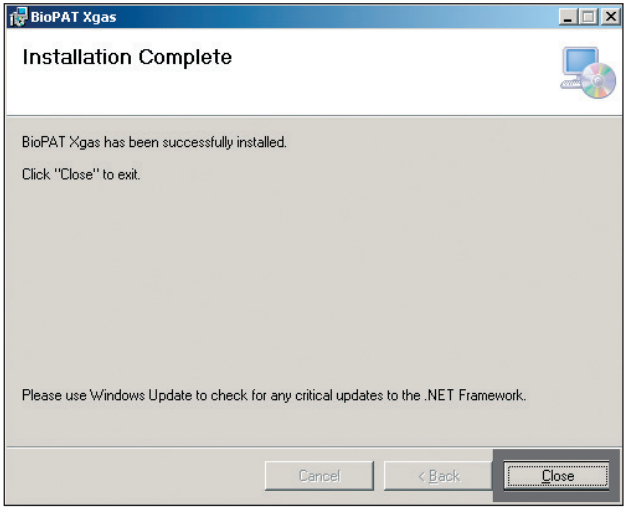
▶ Press button "Next" to install the software in the specified directory.


BioPAT Xgas
Confirm Installation
The installer is ready to install BioPAT Xgas on your computer.
Click "Next" to start the installation.
Cancel
< Back
Next >

▶ Press button "Next" to confirm installation.

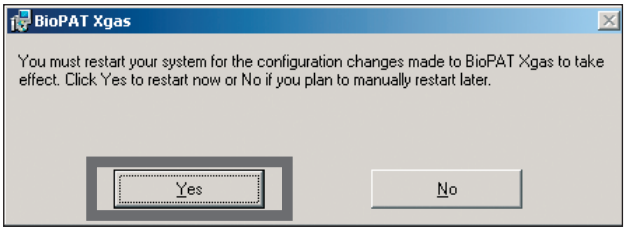


▷ The installation progress is shown on the screen.


BioPAT Xgas
Installation Complete
BioPAT Xgas has been successfully installed.
Click "Close" to exit.
Please use Windows Update to check for any critical updates to the .NET Framework.
Cancel
< Back
Close

▷ The message “Installation Complete“ appears.

▶ Press button “Close”.

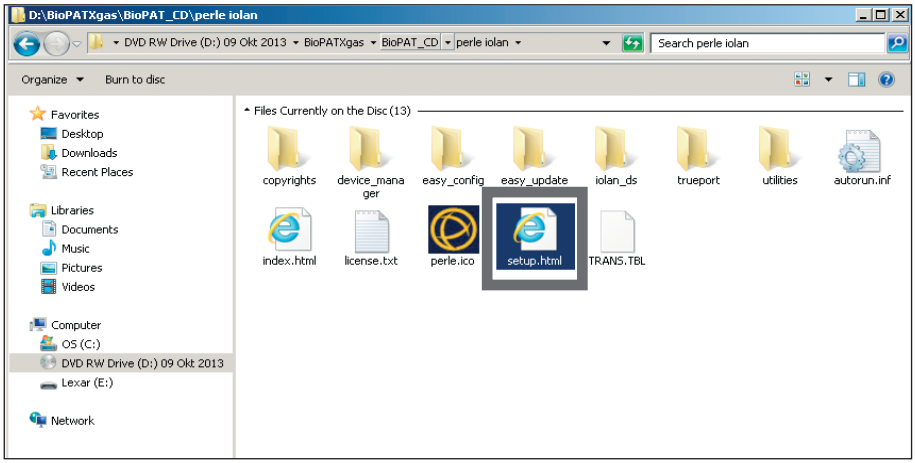

BioPAT Xgas
You must restart your system for the configuration changes made to BioPAT Xgas to take effect. Click Yes to restart now or No if you plan to manually restart later.
Yes
No

▷ Restart message appears.

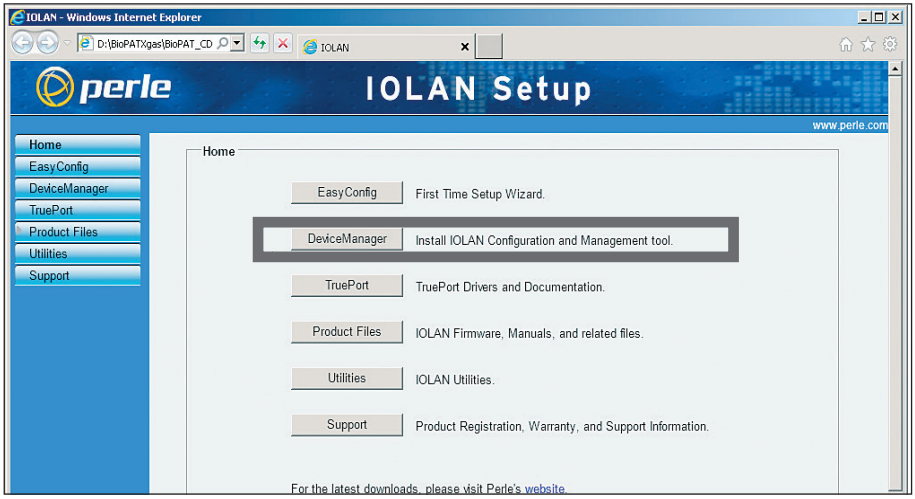
▶ Press button "Yes".

5.3 Perle Device Driver

This chapter describes the installation and configuration of the Perle device driver.

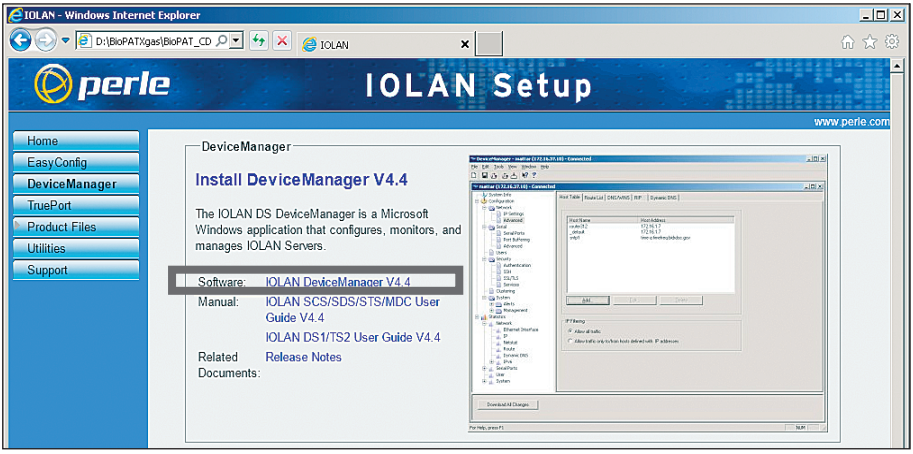


▶ Start the application "\perle iolan\setup.html" from the delivered CD.

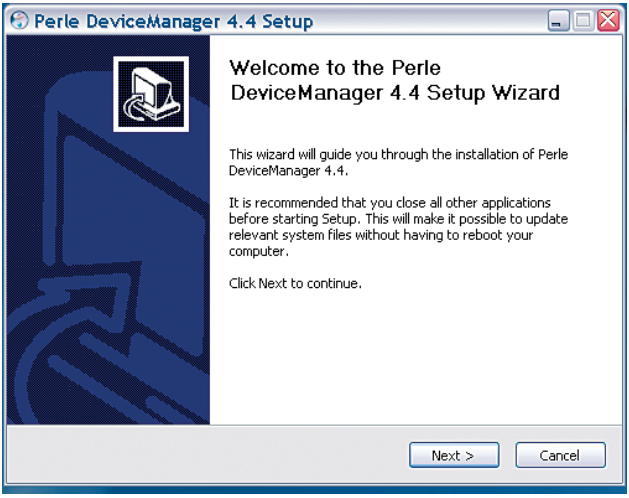


▶ Press button "DeviceManager".

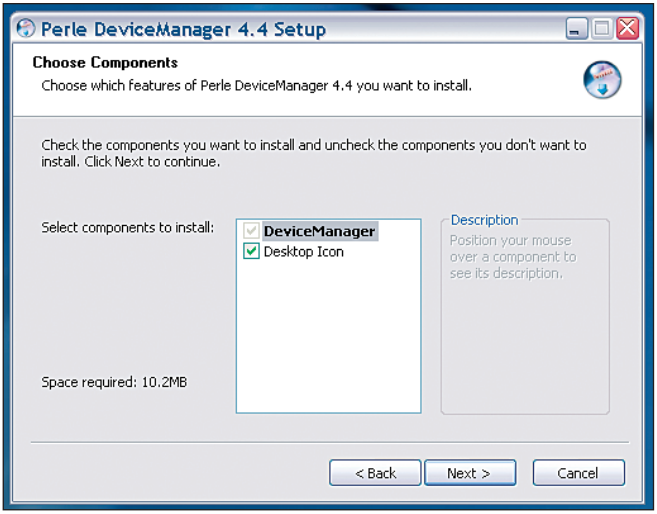
If there is a message to "allow blocked content" then enable blocked content.



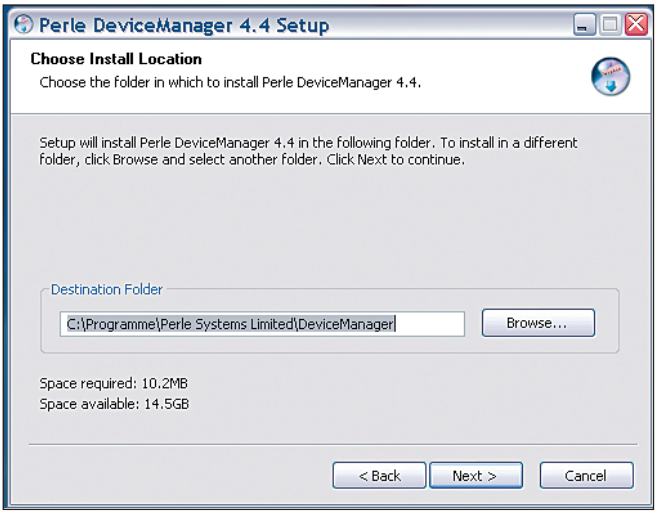
▶ Press link "IOLAN DeviceManager V4.4" to start Device Manager installation.


Perle DeviceManager 4.4 Setup
Welcome to the Perle DeviceManager 4.4 Setup Wizard
This wizard will guide you through the installation of Perle DeviceManager 4.4.
It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.
Click Next to continue.
Next >
Cancel

▶ Press "Next" button to continue with the installation.

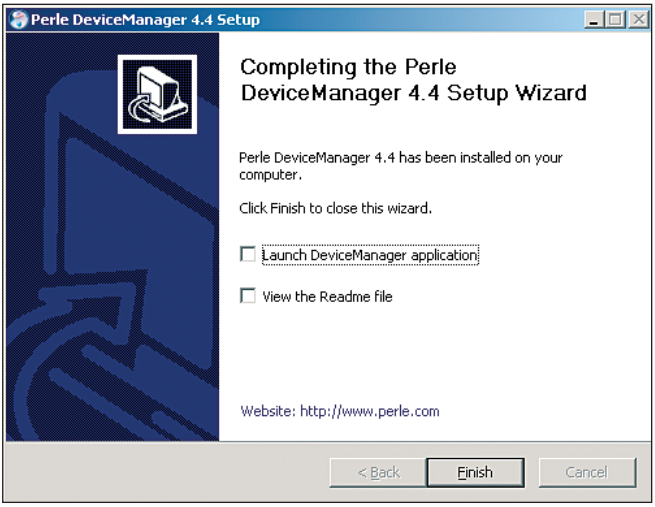

Perle DeviceManager 4.4 Setup
Choose Components
Choose which features of Perle DeviceManager 4.4 you want to install.
Check the components you want to install and uncheck the components you don't want to install. Click Next to continue.
Select components to install:
DeviceManager
Desktop Icon
Description
Position your mouse over a component to see its description.
Space required: 10.2MB
< Back
Next >
Cancel

▶ Use default settings and press “Next” button.


Perle DeviceManager 4.4 Setup
Choose Install Location
Choose the folder in which to install Perle DeviceManager 4.4.
Setup will install Perle DeviceManager 4.4 in the following folder. To install in a different folder, click Browse and select another folder. Click Next to continue.
Destination Folder
C:\Programme\Perle Systems Limited\DeviceManager\
Browse...
Space required: 10.2MB
Space available: 14.5GB
< Back
Next >
Cancel

▶ Use default settings and press “Next” button.

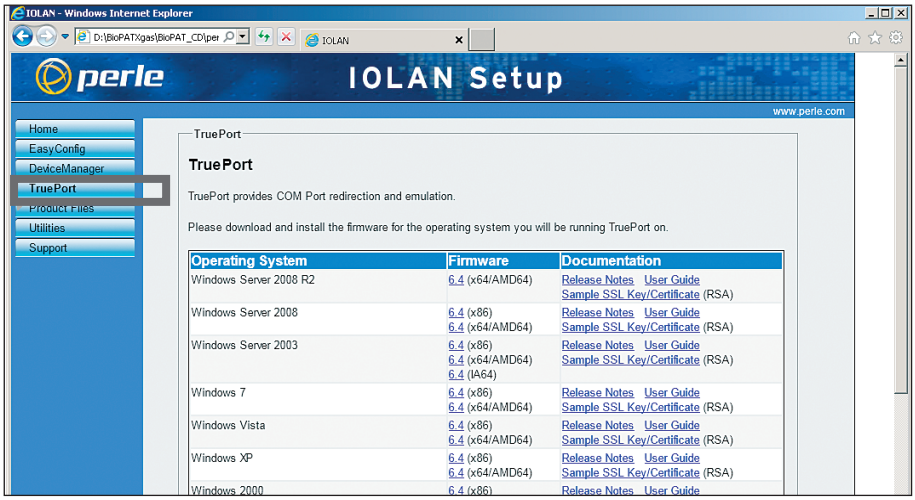
▶ Use default settings and press "Install" button.



▶ Uncheck both topics and press "Finish" button.

5.4 TruePort Application

The following pages describe how to install and configure the TruePort application.

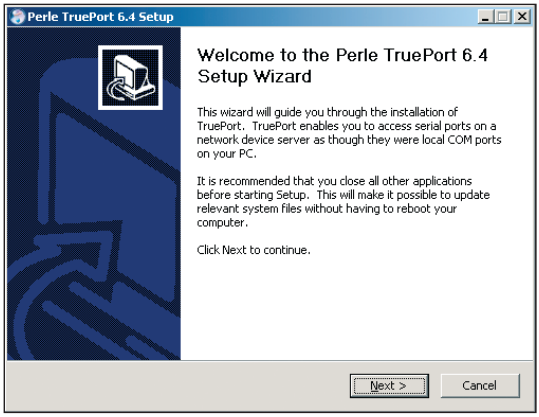


▶ Click on the button "TruePort" on the left side of the IOLAB Setup.

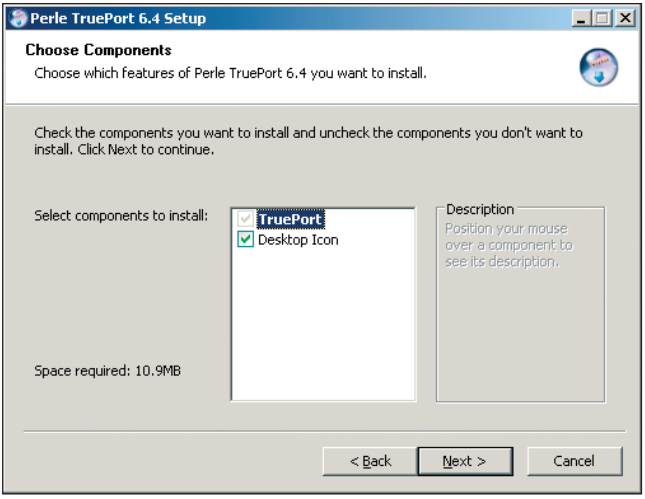
Select the operating system which is installed at your pc.

– For the 32 bit version of the operating system click to "(x86)".

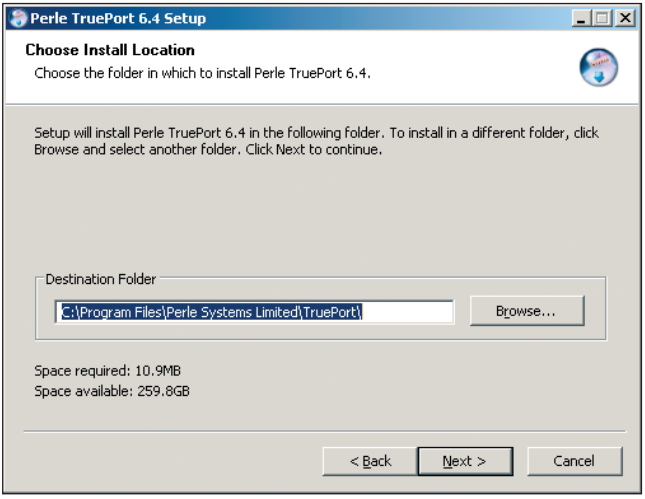
– For the 64 bit version of the operating system click to "(x64)".


Perle TruePort 6.4 Setup
Welcome to the Perle TruePort 6.4 Setup Wizard
This wizard will guide you through the installation of TruePort. TruePort enables you to access serial ports on a network device server as though they were local COM ports on your PC.
It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.
Click Next to continue.
Next >
Cancel

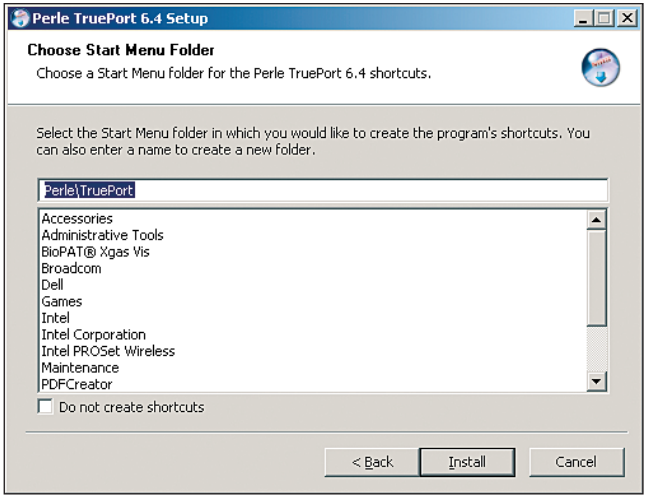
▶ Press "Next" button to continue.


Perle TruePort 6.4 Setup
Choose Components
Choose which features of Perle TruePort 6.4 you want to install.
Check the components you want to install and uncheck the components you don't want to install. Click Next to continue.
Select components to install:
TruePort
Desktop Icon
Description
Position your mouse over a component to see its description.
Space required: 10.9MB
< Back
Next >
Cancel

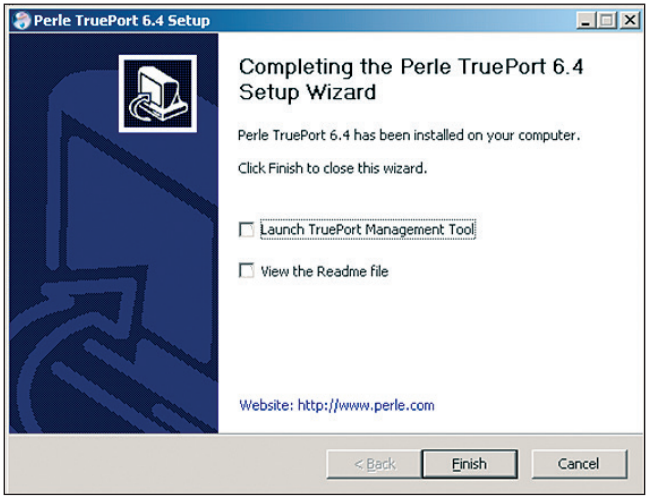
▶ Keep default settings and press "Next" button to continue.


Perle TruePort 6.4 Setup
Choose Install Location
Choose the folder in which to install Perle TruePort 6.4.
Setup will install Perle TruePort 6.4 in the following folder. To install in a different folder, click Browse and select another folder. Click Next to continue.
Destination Folder
C:\Program Files\Perle Systems Limited\TruePort\
Browse...
Space required: 10.9MB
Space available: 259.8GB
< Back
Next >
Cancel

▶ Keep default settings and press "Next" button to continue.



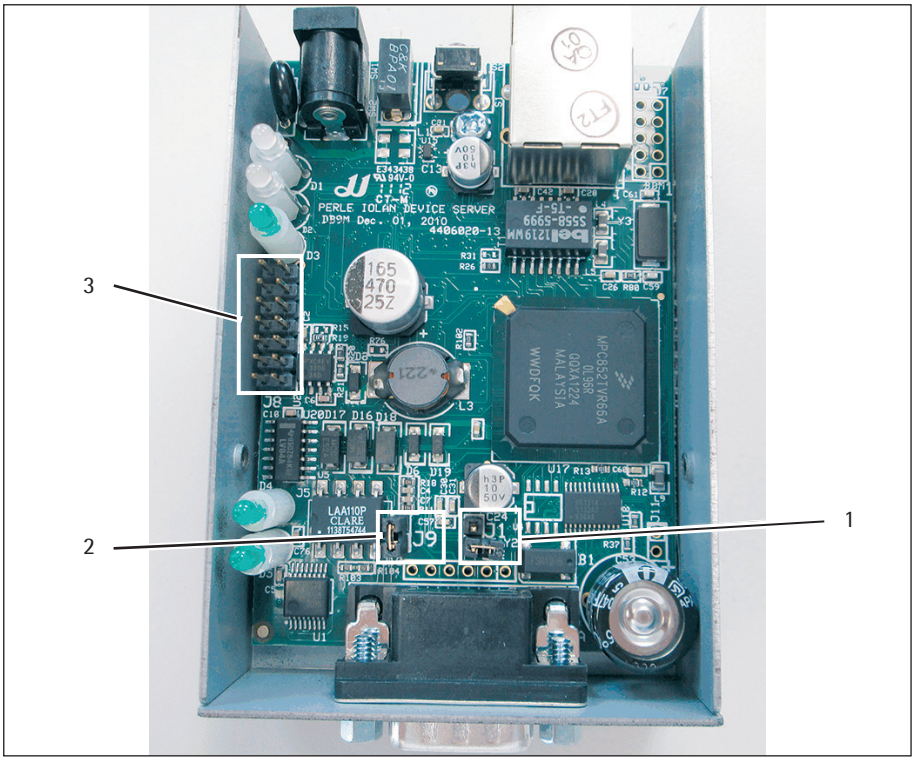
▶ Keep default settings and press button “Install“ to continue.


Perle TruePort 6.4 Setup
Completing the Perle TruePort 6.4 Setup Wizard
Perle TruePort 6.4 has been installed on your computer.
Click Finish to close this wizard.
Launch TruePort Management Tool
View the Readme file
Website: http://www.perle.com
< Back
Finish
Cancel

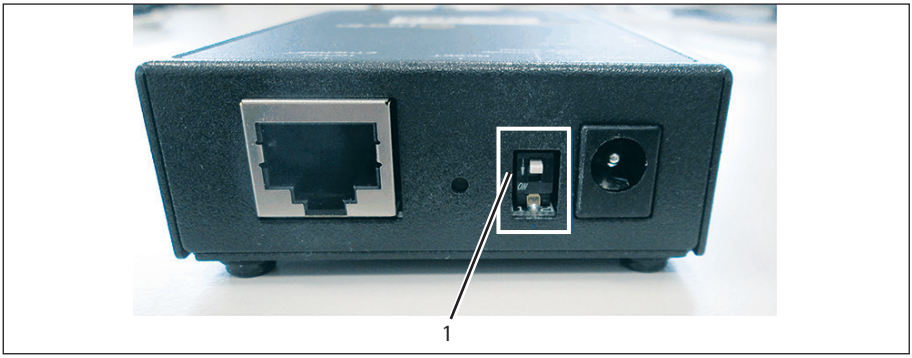
▶ Uncheck both topics and press “Finish” button.

6. Hardware Settings

6.1 Checking Jumper Settings at the Perle Device



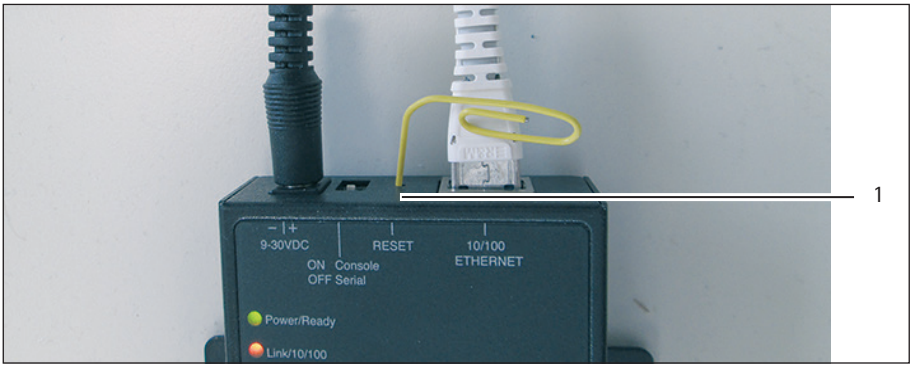
- ▶ Loosen the two screws on the side of the housing to open the Perle device.
- ▶ Set the jumpers as specified below:
  - – Set jumper J1 (1) open
  - – Set jumper J8 (3) all open
  - – Set jumper J9 (2) closed
- ▶ Close the Perle device and fasten the two screws.



▶ Set the switch (1) to "OFF" (upper position).

▷ The perle device is set to serial mode.

6.2 Reseting Perle Device



▶ Press the "RESET" button with a paper clip to reset the Perle device.

▷ After 5 s the lamp "Power/Ready" changes color from green to orange.

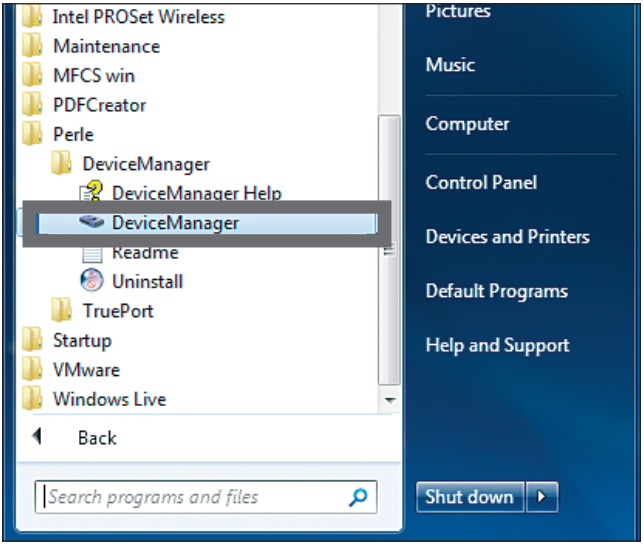
After "Reset" please wait at least 2 min to let the Perle device finish the reset.

7. Configuration

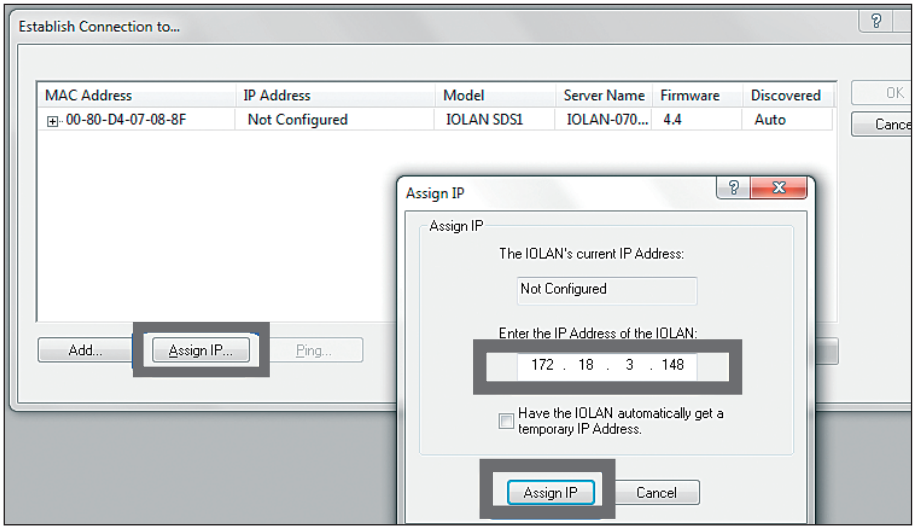
7.1 Perle Device

Double check, whether the Windows firewall is disabled or the Perle device manager is enabled in the firewall.
In Windows firewall open all ports especially for the “devicemanager.exe” (UDP) and for the “tftp_svr.exe” (TCP) or temporarily disable the firewall.

For server OS deactivate or stop “DHCPClient” service before starting the configuration. Otherwise the device will receive an IP address automatically.



▶ Start Perle “Device Manager”.

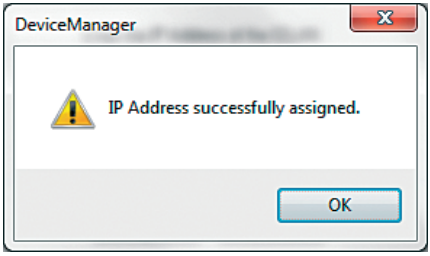


▶ Press button "Assign IP".

▶ Enter your IP address for the Perle device.

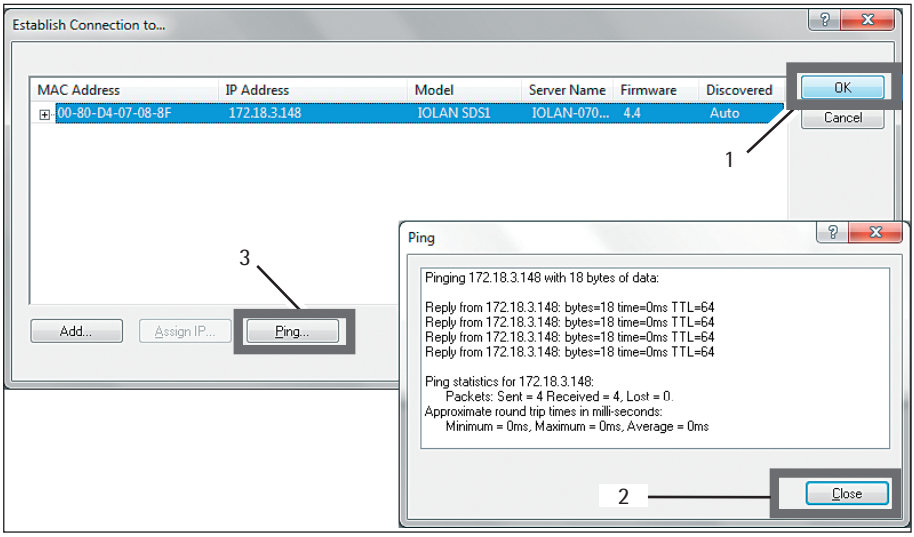
▶ Press button "Assign IP".

▷ The following message is shown.

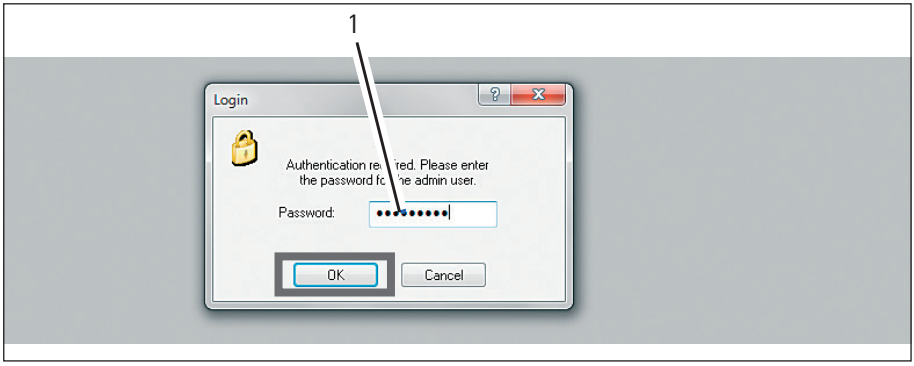


▶ Press "OK" button.

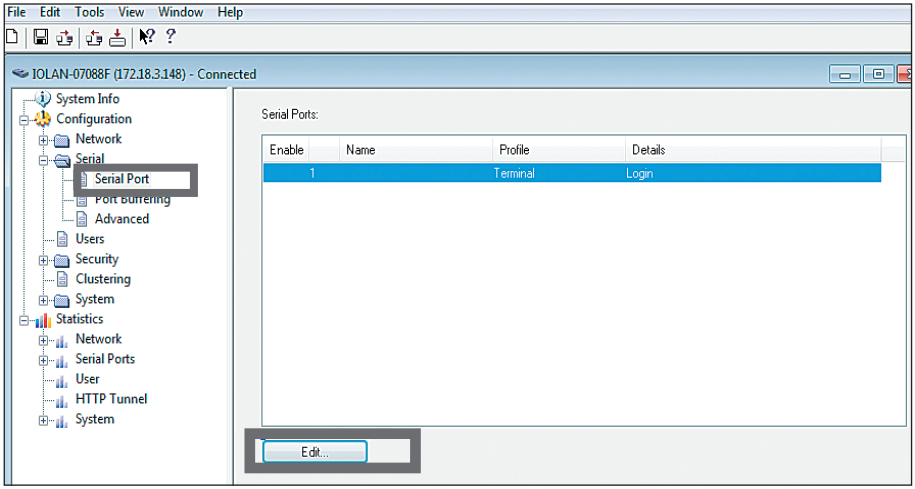
Test connection



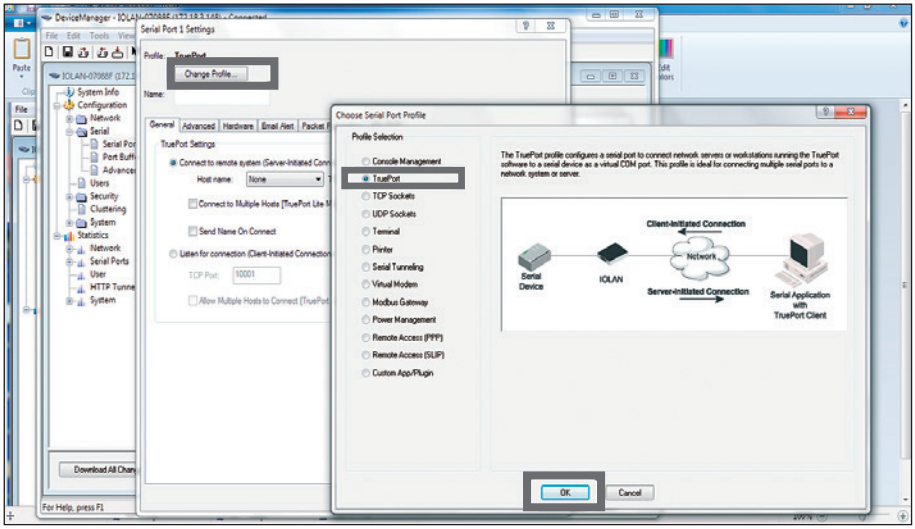
- ▶ Press "Ping" (3) button to test connection.
- ▶ Close Ping window (2).
- ▶ Press "OK" button (1) to connect to Perle device.



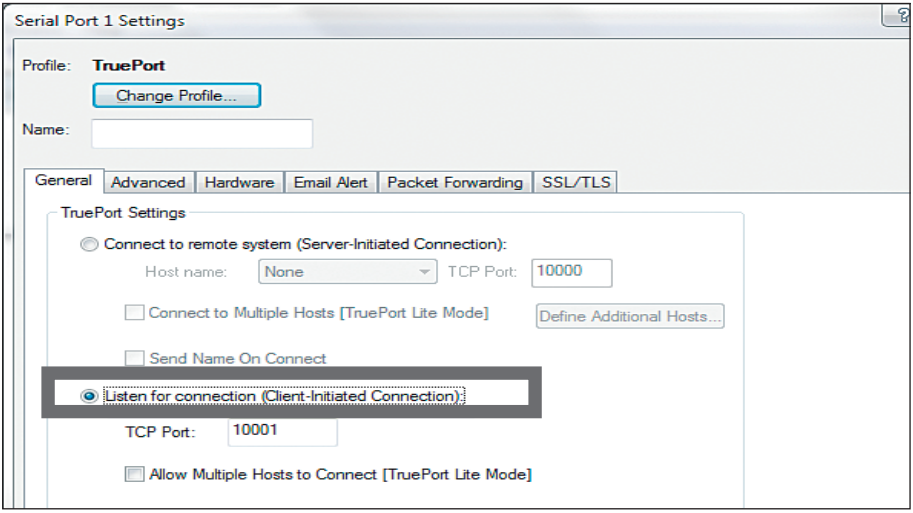
- ▶ Enter the default password "superuser" (1).
- ▶ Press the "OK" button.



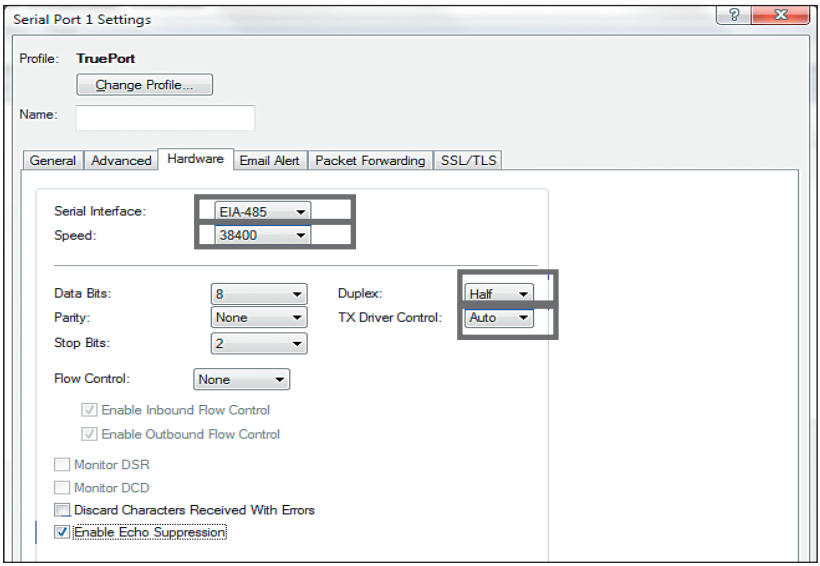
- Open menu “Configuration / Serial / Serial Port”.
- Press “Edit” button.



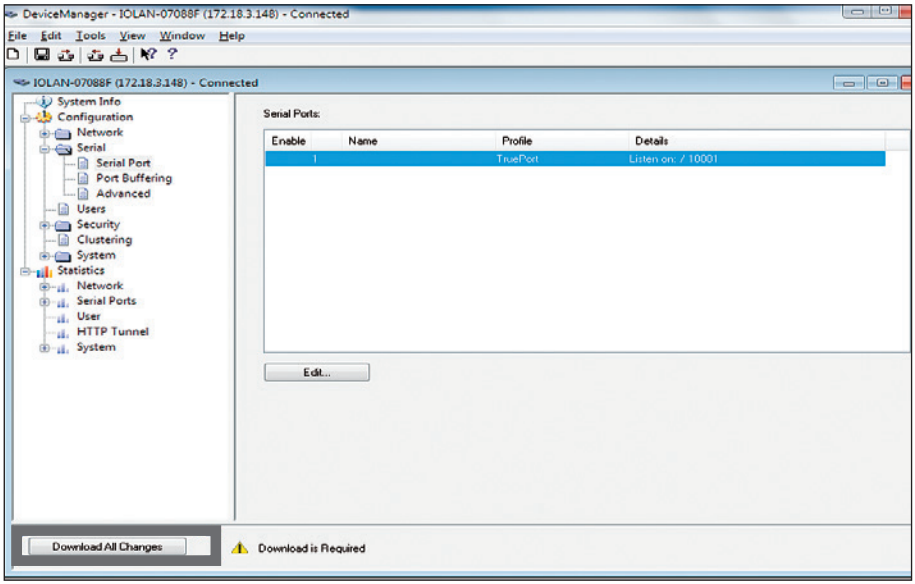
- Press button “Change Profile”.
- Select option “TruePort” and press “OK” button.



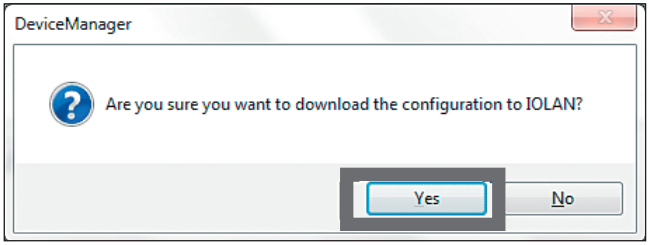
- Select option "Listen for connection" under tab "General".
- Press "OK" button.



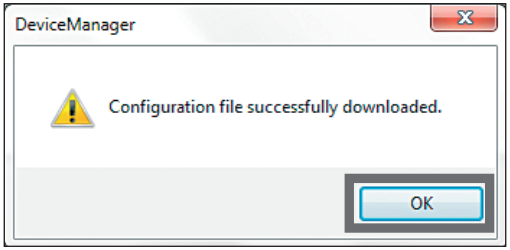
- Change to tab "Hardware".
- Make the selections as shown in the picture.
- Press "OK" button.



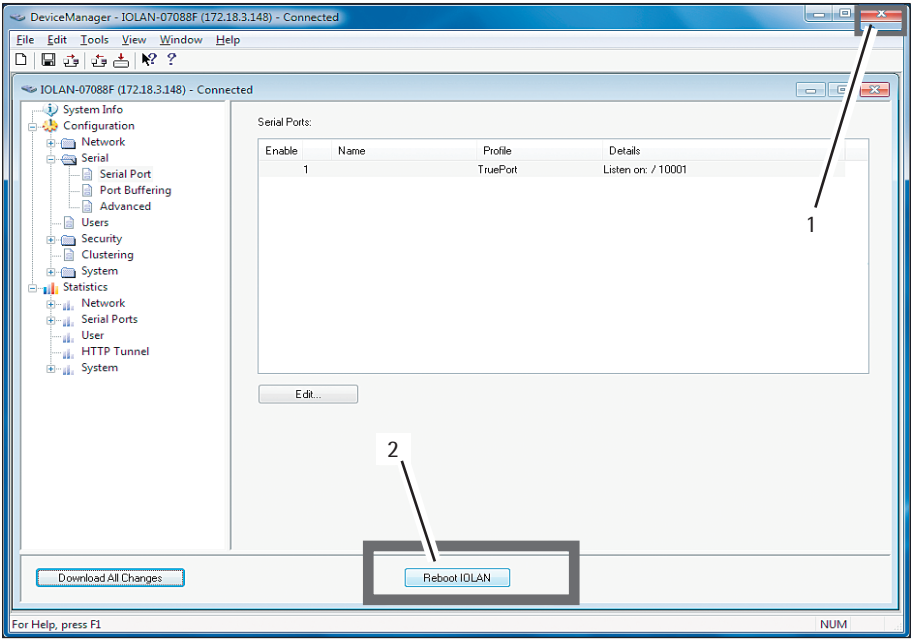
▶ Press button "Download All Changes".



▶ Press button "Yes" to confirm.



▶ Press "OK" button.

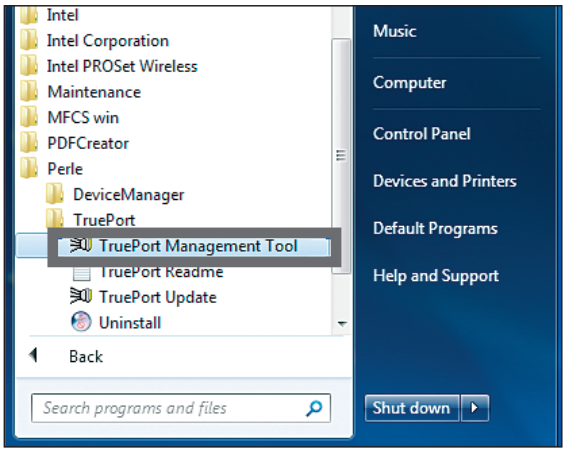


▶ Press button "Reboot IOLAN" (2).

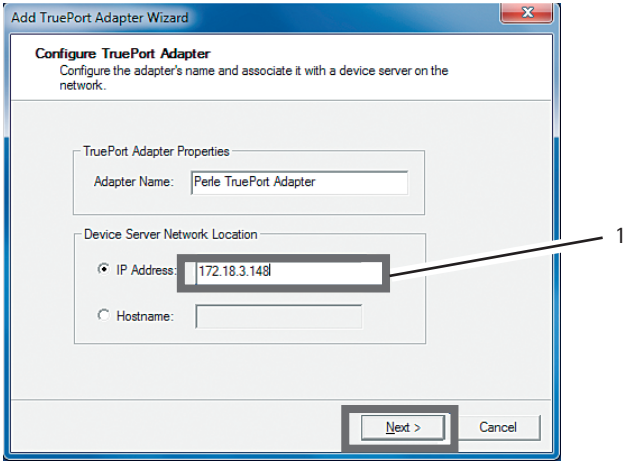
▶ Close the DeviceManager (1).

7.2 Serial Port

7.2.1 Configuring Serial Port with TruePort Management Tool

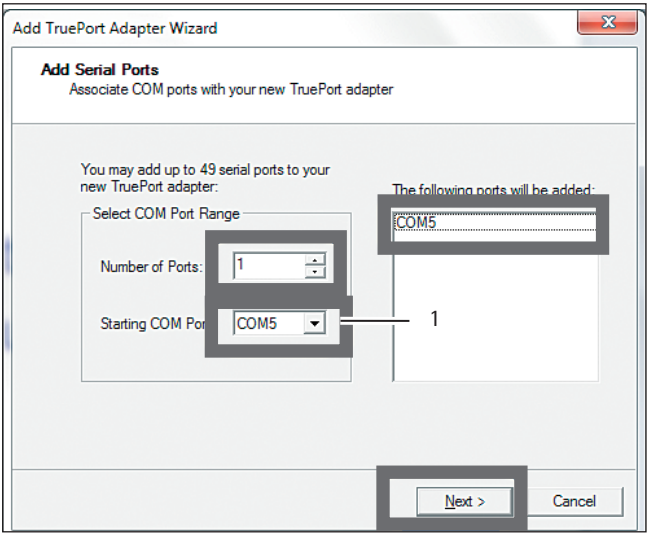


▶ Start the "TruePort ManagementTool" to configure the serial port.



▶ Enter the IP address of the Perle device to the field "IP Address" (1)

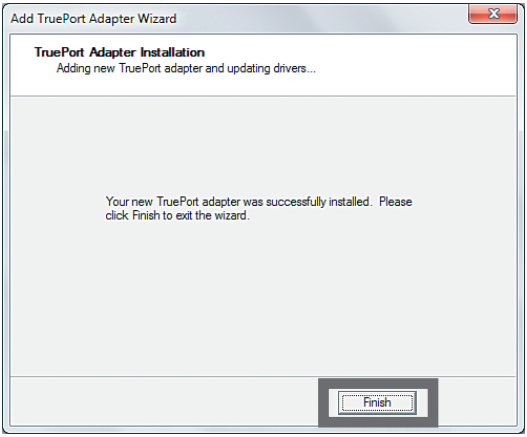
▶ Press "Next" button.



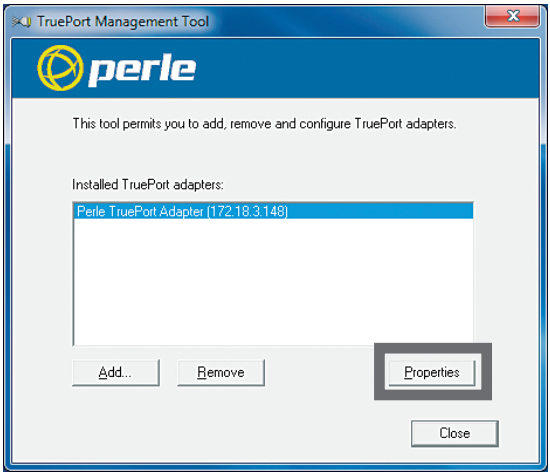
▶ Select an available port from the drop down list "Starting COM Port" (1).

▶ Press "Next" button.

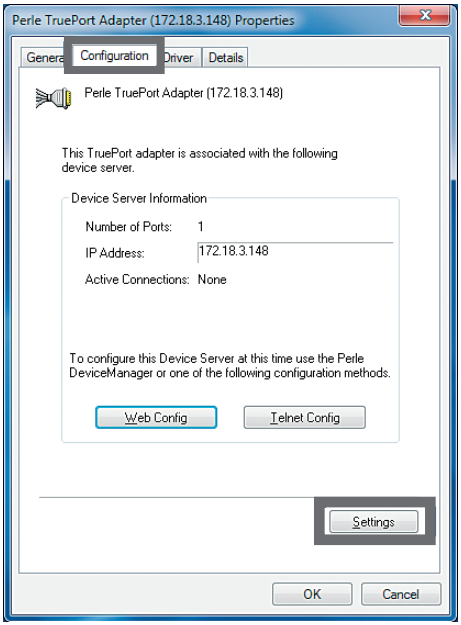
It is recommended to start with COM5, because COM5 will not be used (and therefore available) on most of the systems. Continue with COM6, COM7 if more Perle devices will be connected.


Add TruePort Adapter Wizard
TruePort Adapter Installation
Adding new TruePort adapter and updating drivers...
Your new TruePort adapter was successfully installed. Please click Finish to exit the wizard.
Finish

▶ Press button "Finish".

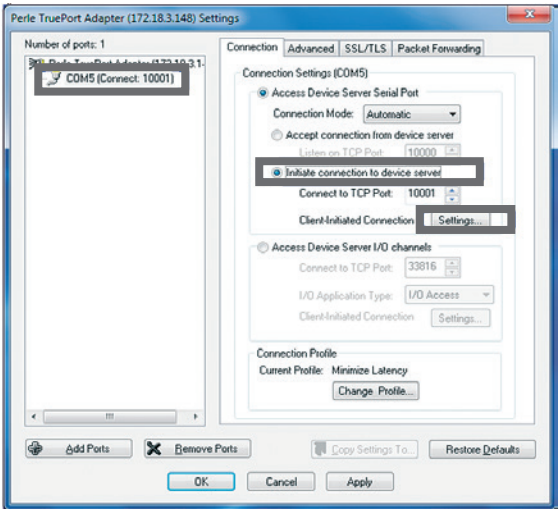


▶ Select the recently configured device and press button "Properties".

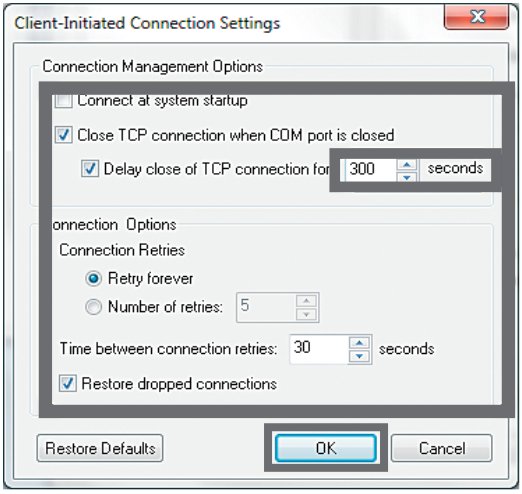


▶ Change to register card "Configuration".

▶ Press button "Settings.

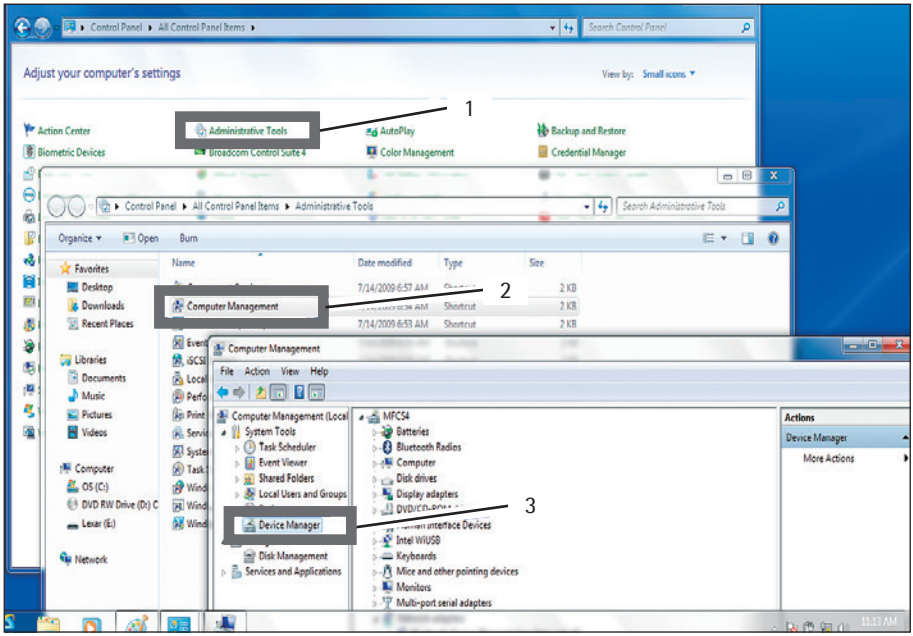


- Select the COM port.
- Activate "Initiate connection to device server".
- Press button "Settings".

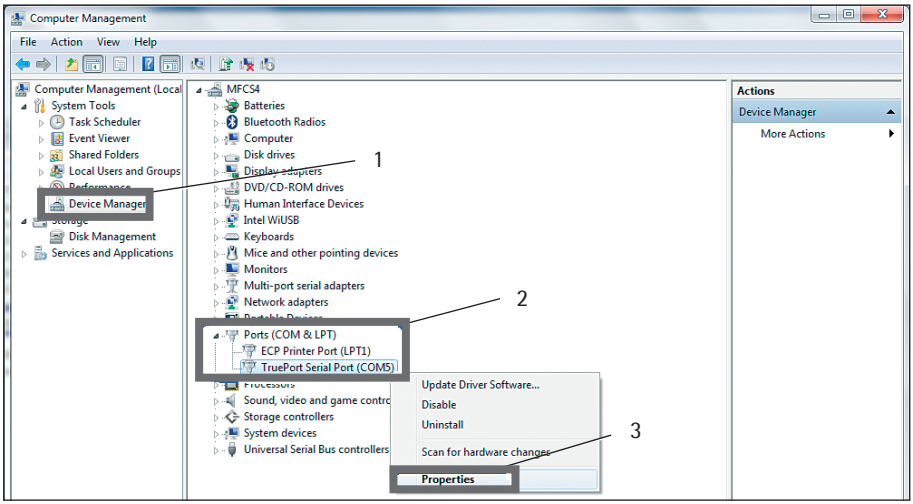


- Change setting "Delay close of TCP connection for" to 300 seconds.
- Press button "OK" and close all the remaining windows.

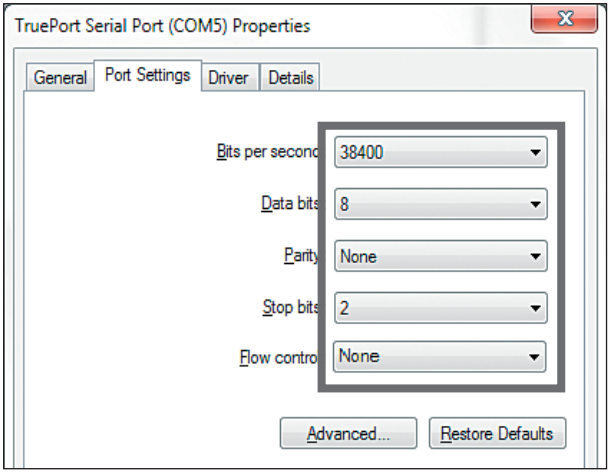
7.2.2 Configuring Serial Port with Device Manager



- ▶ Open the Windows "Control panel".
- ▶ Select "Administrative Tools" (1).
- ▶ Select "Computer Management" (2).
- ▶ Select Device Manager (3).



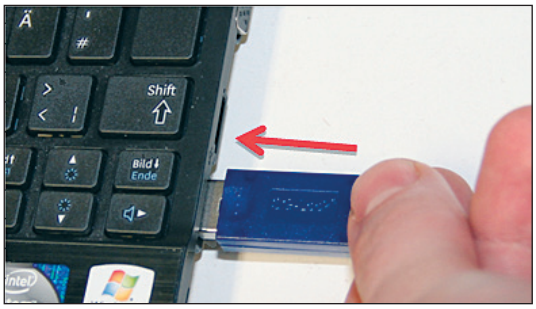
- Select Ports (COM & LPT) (2).
- Right mouse click to "Trueport Serial Port (COM5)" (2).
- Select "Properties" (3).



- Change to register card "Port Settings".
- Perform the settings shown in the picture above.
- Press "OK" button and close the Windows device manager.

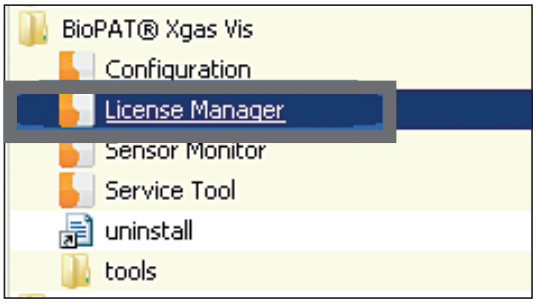
7.3 BioPAT® Xgas Vis OPC License

This chapter describes how to activate the BioPAT® Xgas Vis OPC License.

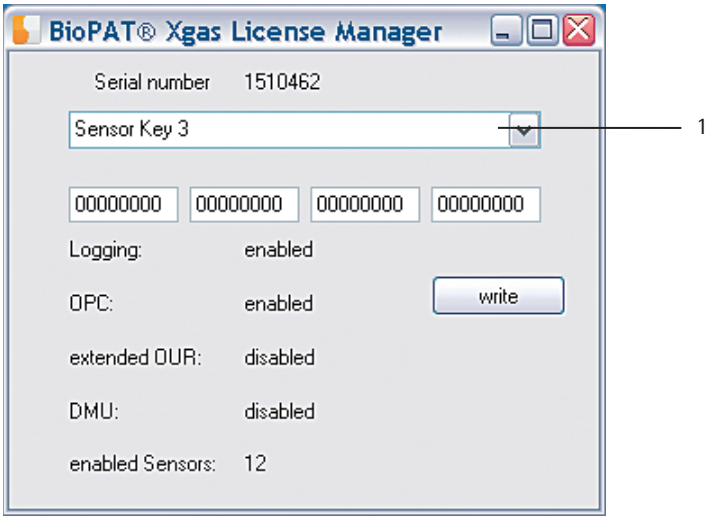


▶ Plug the blue license dongle (SG-Lock) into a free USB port of the MFCS/win computer.

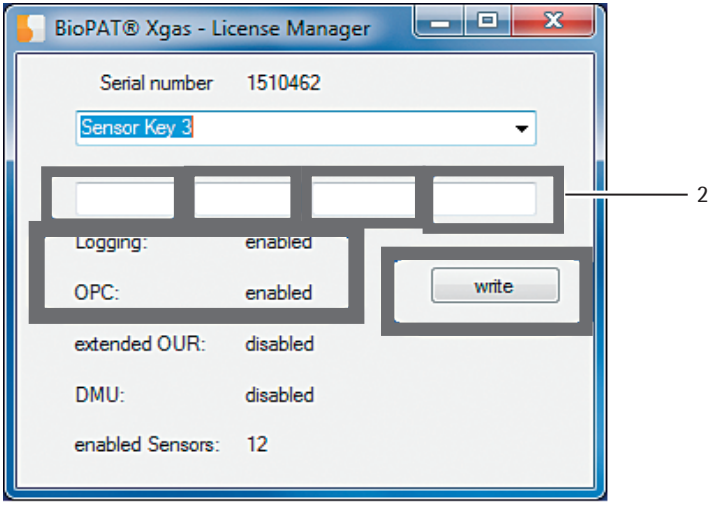
The dongle must stay in the USB port all the time if you want to use all features. If the application without the dongle is used, then only the measurement of one analyzer in the BioPAT® Xgas Vis software (without logging) can be used in the Service Tool for the calibration and the changing the MODBUS ID.



▶ Start the "License Manager" to activate the BioPAT® Xgas VIS OPC license.



▶ Select "Sensor Key 3" (1) from drop down menu.



▶ Enter the corresponding key in the four input fields (2).

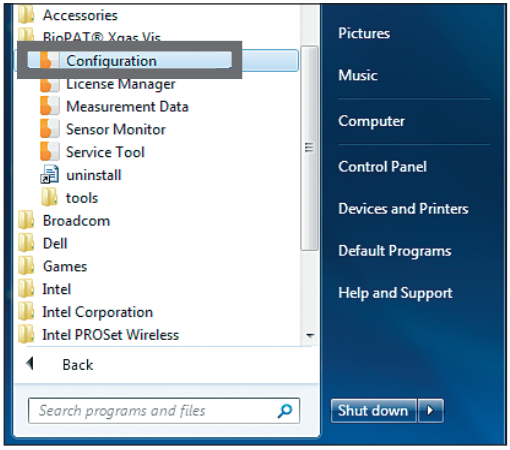
▶ Press the button "write".

▷ The unlocked features and the number of enabled sensors is shown.

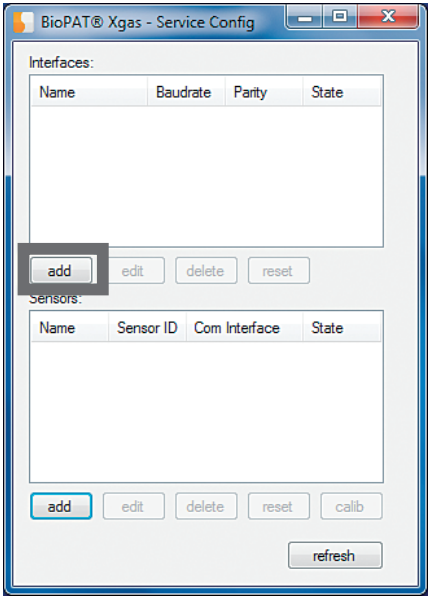
▶ Close the "License Manager".

7.4 BioPAT® Xgas Sensor

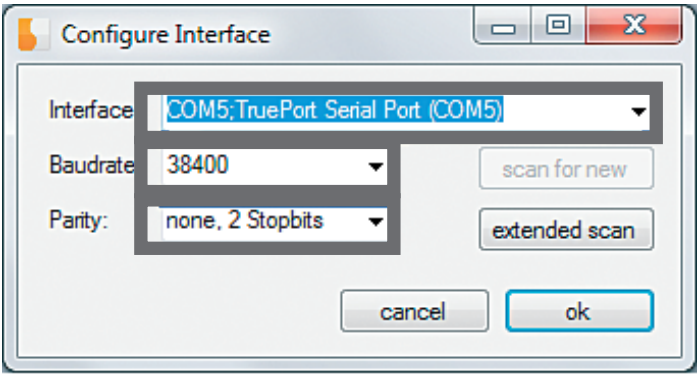
7.4.1 Configuring One Sensor



▶ Start the "Configuration" tool for BioPAT® Xgas to configure one XGAS Sensor.



▶ Press the "add" button for interfaces to add a new "Interface".



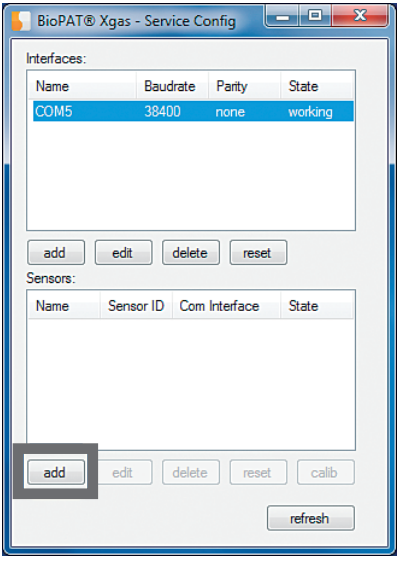
▶ Select

– the correct Interface.

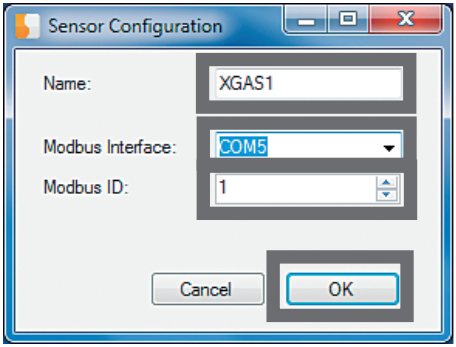
– Baudrate "38400".

– Parity "none, 2 Stopbits".

▶ Press "OK" button.

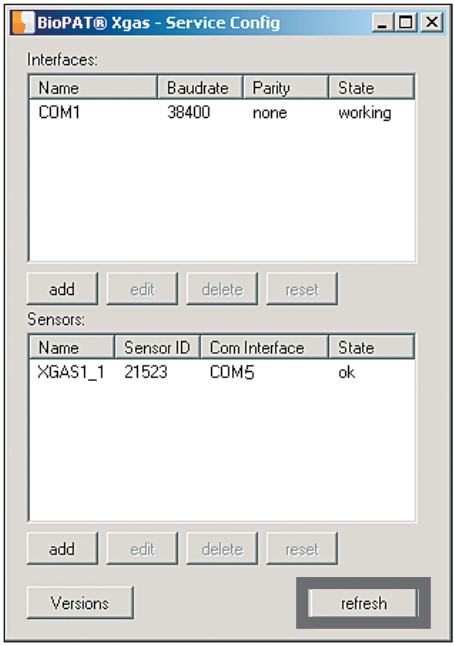


▶ Press the "add" button for sensors to add a new sensor.



▶ Enter a name ,the Modbus interface and the Modbus ID 1.

▶ Press the "OK" button.



▷ After the sensor has been added, it is shown in the Sensor list.

▶ If state "ok" is not shown in the Sensor list, press the "refresh" button to refresh the list.

For sensors naming conventions refer to examples on the following pages.

7.4.1.1 Naming conventions for XGAS Sensors

Example 1:
Only one BioPAT® Xgas Sensor with a BIOSTAT fermentor

	Name	Modbus Interface	Modbus ID	Description
1. Sensor	XGAS1_1	COM5	1	Single

Example 2:
Two BioPAT® Xgas Sensors with a twin fermentor system

	Name	Modbus Interface	Modbus ID	Description
1. Sensor	XGAS1_1	COM5	1	Twin A
2. Sensor	XGAS1_2	COM5	2	Twin B

Example 3:
Four BioPAT® Xgas Sensors with a B-DCU II 6-fold fermentor system

	Name	Modbus Interface	Modbus ID	Description
1. Sensor	XGAS1_1	COM5	1	B6 A
2. Sensor	XGAS1_2	COM5	2	B6 B
3. Sensor	XGAS1_3	COM5	3	B6 C
4. Sensor	XGAS1_4	COM5	4	B6 D
5. Sensor	XGAS1_5	COM5	5	B6 E
6. Sensor	XGAS1_6	COM5	6	B6 F

Example 4:

Nine BioPAT® Xgas Sensors with:

- One BIOSTAT B single fermentor system
- One BIOSTAT B twin fermentor system
- One BIOSTAT B-DCU II 6-fold fermentor system

	Name	Modbus Interface	Modbus ID	Description
1. Sensor	XGAS1_1	COM5	1	Single
2. Sensor	XGAS2_1	COM6	1	Twin A
3. Sensor	XGAS2_2	COM6	2	Twin B
4. Sensor	XGAS3_1	COM7	1	B6 A
5. Sensor	XGAS3_2	COM7	2	B6 B
6. Sensor	XGAS3_3	COM7	3	B6 C
7. Sensor	XGAS3_4	COM7	4	B6 D
8. Sensor	XGAS3_5	COM7	5	B6 D
9. Sensor	XGAS3_6	COM7	6	B6 D

7.4.2 Configuring Multiple Sensors with one Ethernet Modbus Converter

If more than one BioPAT® Xgas Sensor is to be connected to one Perle device (Ethernet Modbus converter), then additional configuration steps are needed, because the default delivery Modbus address of each BioPAT® Xgas Sensor is "1".

▶ Please perform the following configuration steps one after each other:

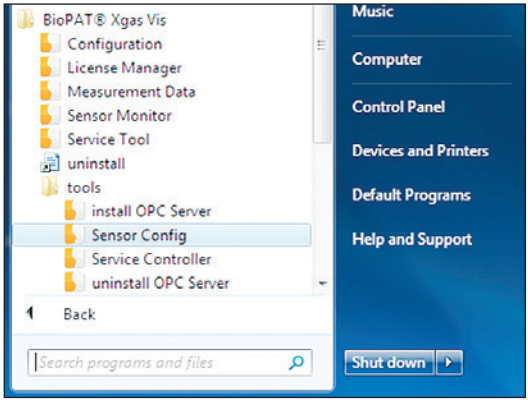
Configuration Step	Description
1	Connect Sensor #1. Verify that it already has Modbus address #1.
2	Label Sensor #1 with the following information: Modbus ID : 1.
3	Disconnect Sensor #1.
4	Connect Sensor #2. Change the Modbus address for #1 to #2. Please refer to chapter [➡ 7.5, page 50].
5	Label Sensor #2 with the following information: Modbus ID : 2.
6	Disconnect Sensor #2.
7	Connect Sensor #3. Change the Modbus address for #1 to #3. [➡ 7.5, page 50].
8	Label Sensor #3 with the following information: Modbus ID : 3.
9	Disconnect Sensor #3. Do the same with all the others, which will be connected to the same Perle device.
10	Connect Sensor #n. Change the Modbus address for #1 to#n [➡ 7.5, page 50].
11	Label Sensor #n with the following information: Modbus ID : n.
12	Disconnect Sensor #n.

After the Modbus addresses of all BioPAT® Xgas Sensors has been set correctly, perform the following steps:

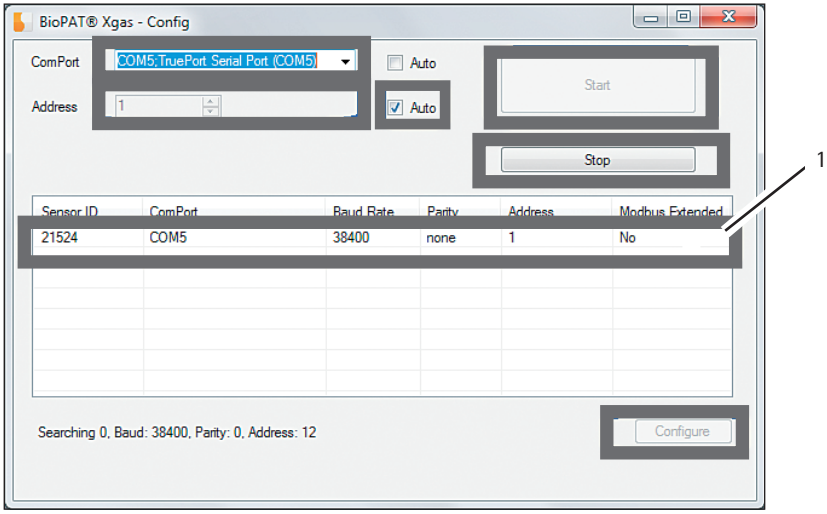
▶ Connect all BioPAT® Xgas Sensors with the delivered Modbus cables.

▶ Connect the Modbus termination to the last sensor as shown in figure 6-1 [➡ see chapter 4.2, page 8].

7.5 Changing the Modbus Address



▶ Start the tool "BioPAT Xgas Vis / Tools / Sensor Config" to change the Modbus address.



▶ Select the ComPort, where the sensor is connected.

▶ Check the field (Address Auto).

▶ Press "Start" button.

▶ Wait until the sensor appears (1).

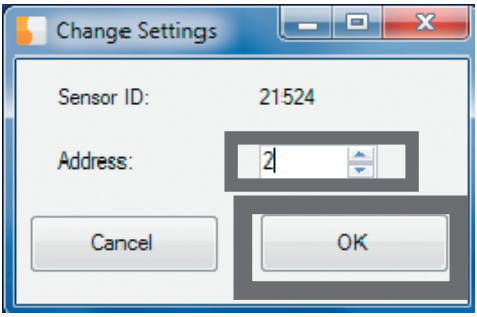
▶ Press "Stop" button.

▶ Select the sensor from the list.

▶ Press "Configure" botton.

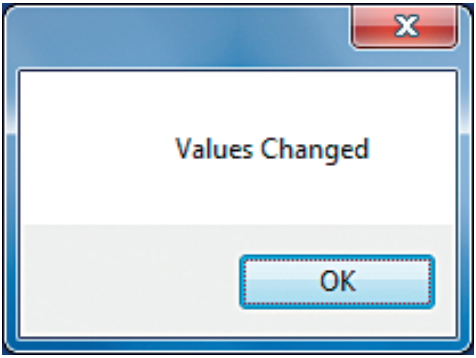
A few seconds after pressing the “Start” button, the message “Searching” must appear in the upper left corner of the “Sensor Config” window.

– If this message is not shown, press “Start” button again.



▶ Enter the new address for the sensor.

▶ Press “OK“ button.

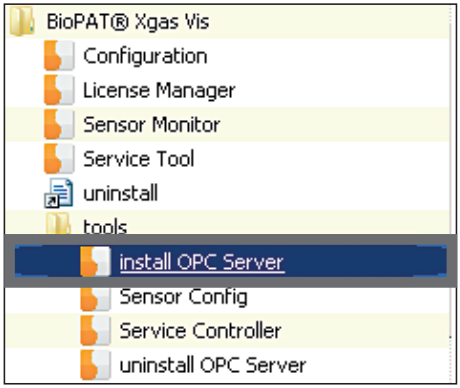


▷ The success message is shown.

▷ Press “OK“ button.

8. Installation of BioPAT® Xgas OPC Server

Start the program "install OPC server" to install the BioPAT® Xgas OPC Server.



▶ Open "BioPAT® Xgas Vis / tools menu / install OPC server".

▶ Press button "OK" to finish the installation.

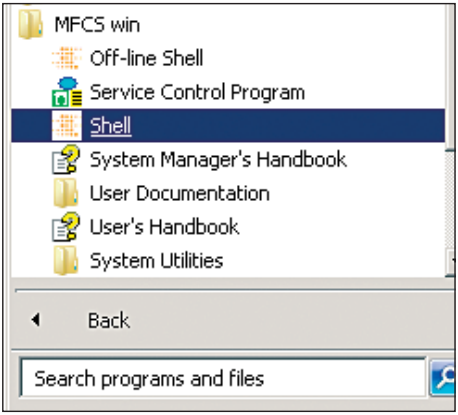
8.1 Installing MFCS/win OPC Client

If the MFCS/win OPC DA Client is already installed, then continue with next chapter.

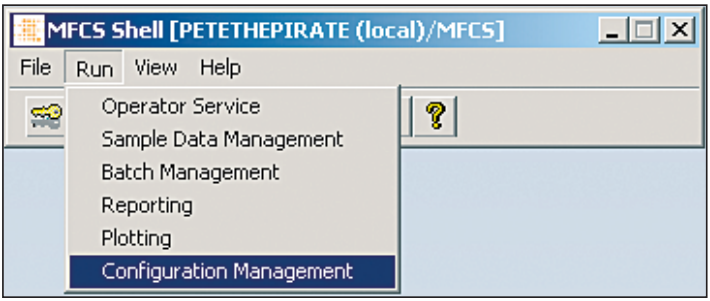
▶ If the MFCS/win OPC DA Client is not installed, install the MFCS/win OPC DA Client according the delivered documentation "MFCS/win OPC DA Client Handbook (MFCSOPCC)".

8.2 Configuring MFCS/win Configuration Management

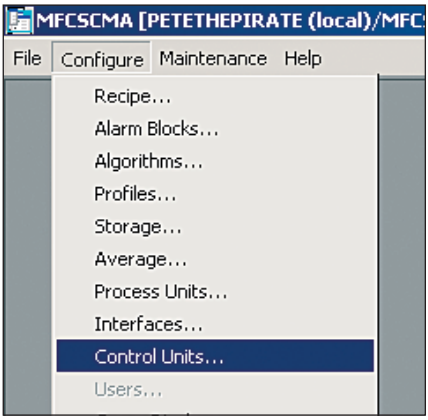
Inside the MFCS/win SCADA software first a control unit of type "OPC" must be configured. Then the variables for O_2 and CO_2 of the different fermentors must be configured.



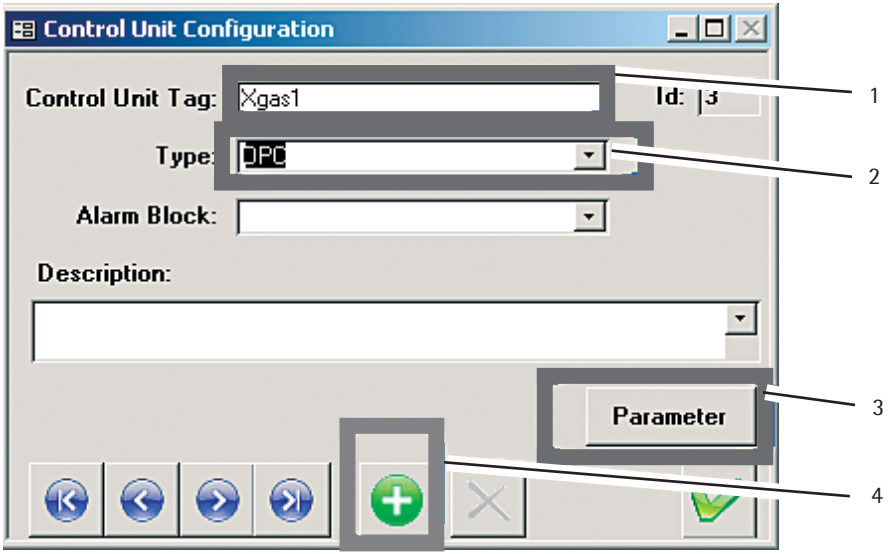
▶ Start MFCS/win Shell.



▶ Start "Configuration Management".



▶ Select "Configure / Control Units".



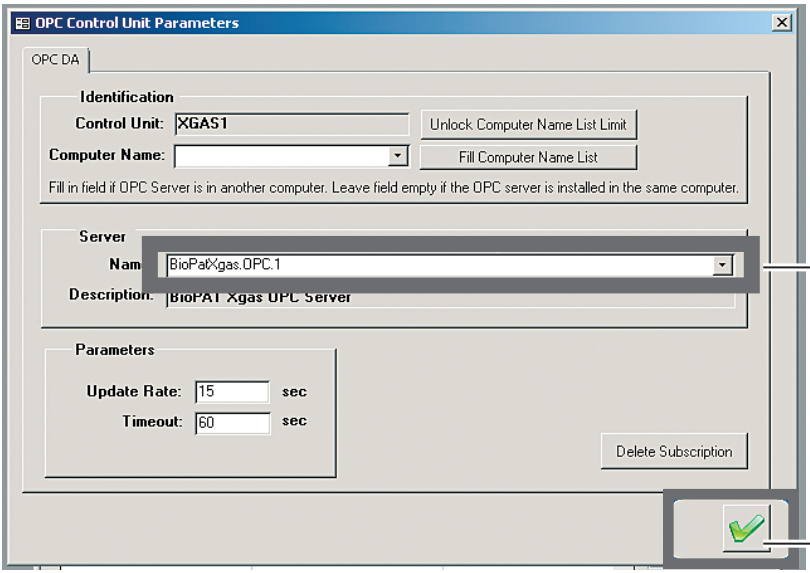
▶ Create a new Control Unit of type "OPC" and enter a name (e.g. Xgas1):

– Press "New" button (4).

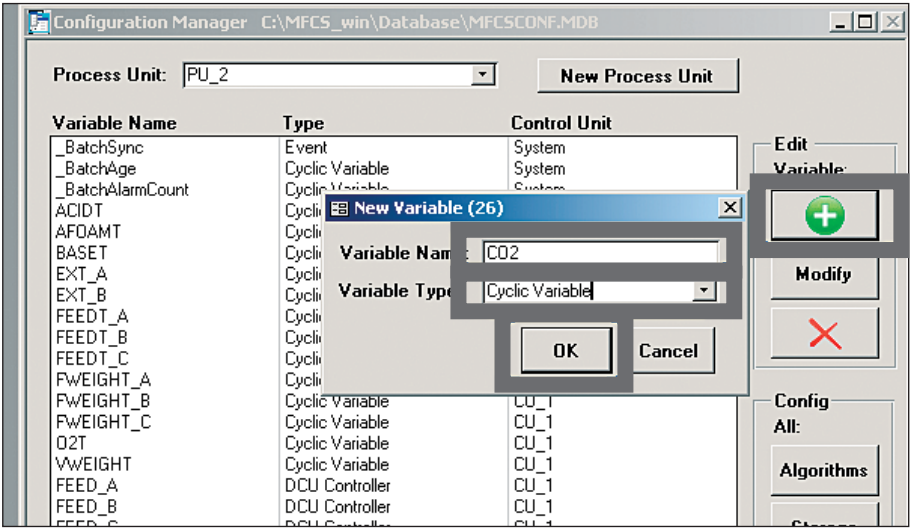
– Select Control Unit name (1).

– Select type „OPC" (2).

– Press button "Parameter" (3).

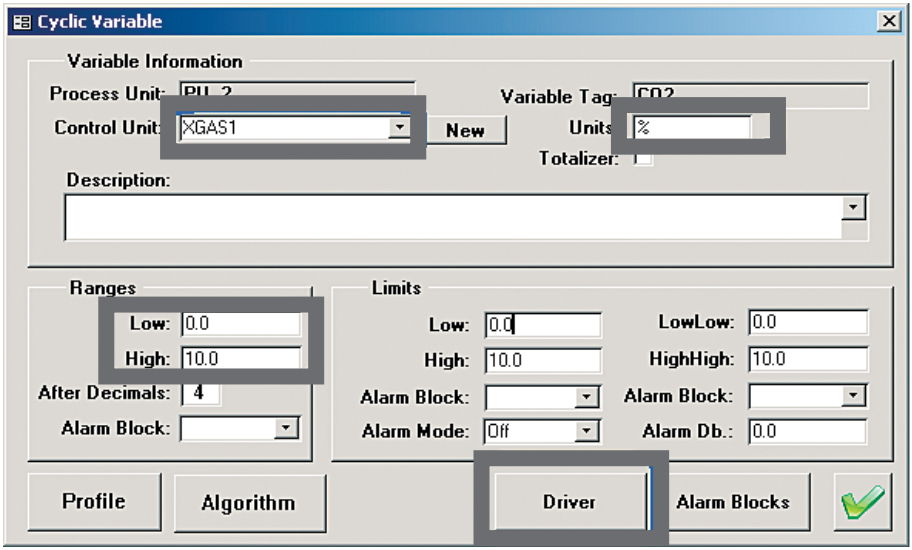


▶ Select the "BioPatXgas.OPC.1" server from the drop down list (1) and confirm (2).

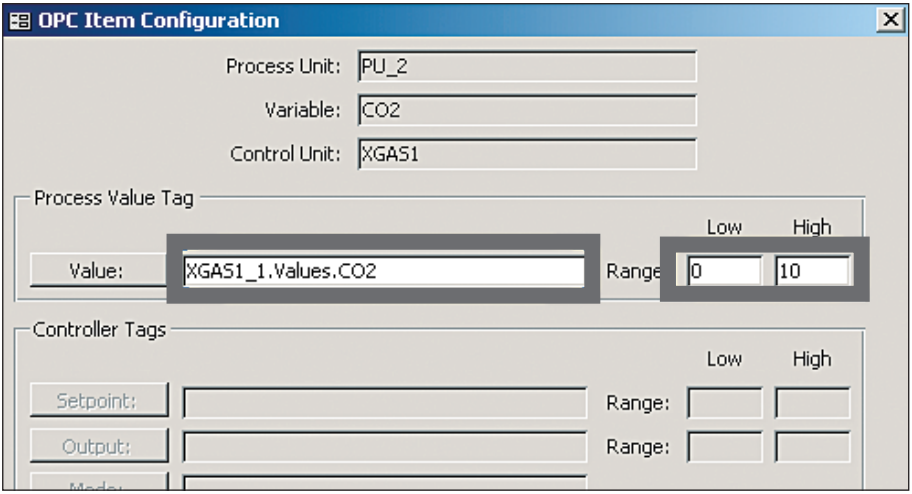


▶ Create a new cyclic variable "CO_2".

▶ Create a new cyclic variable "O_2".

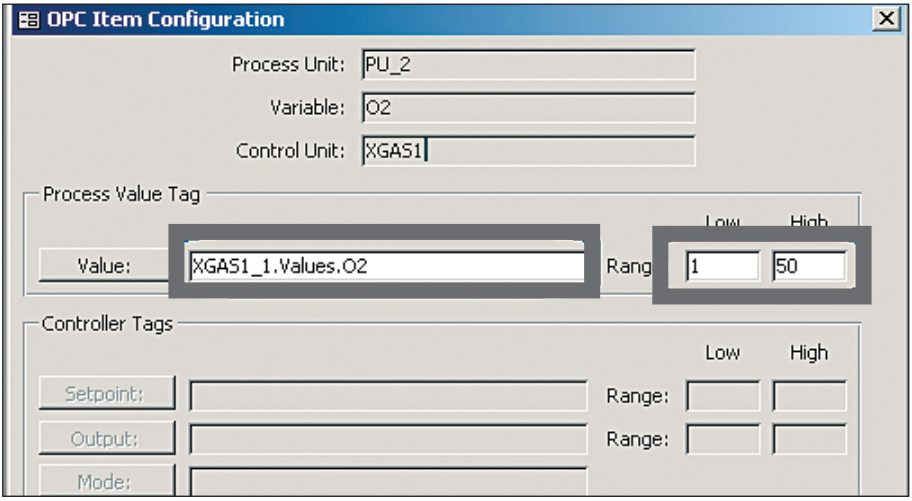


- ▶ Select control unit "XGAS1".
- ▶ For CO_2 configure the range 0-10 %
- ▶ For O_2 configure the range 1-50 %.
- ▶ Press "Driver" button.
- ▷ The "OPC Item Configuration" opens (see following picture).



▶ If the sensor name is "XGAS1_1", enter the OPC Tag "XGAS1_1.Values.CO2".

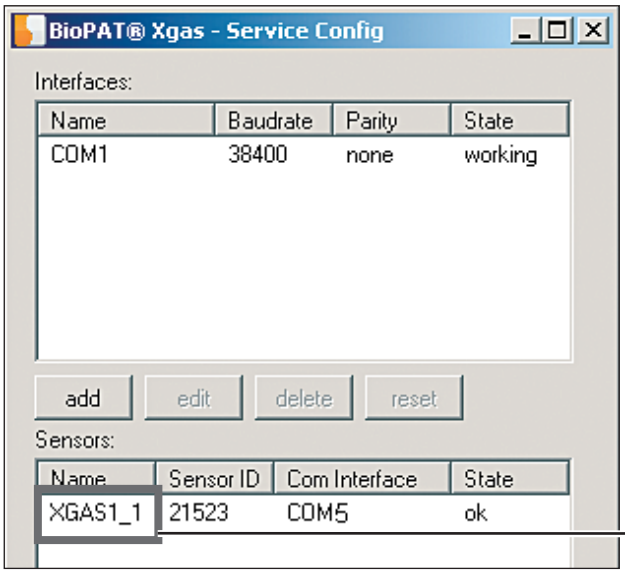
▶ Confirm with "OK" button.



▶ If the sensor name is "XGAS1_1", enter the OPC Tag "XGAS1_1.Values.O2".

▶ Confirm with "OK" button.

Sensor name



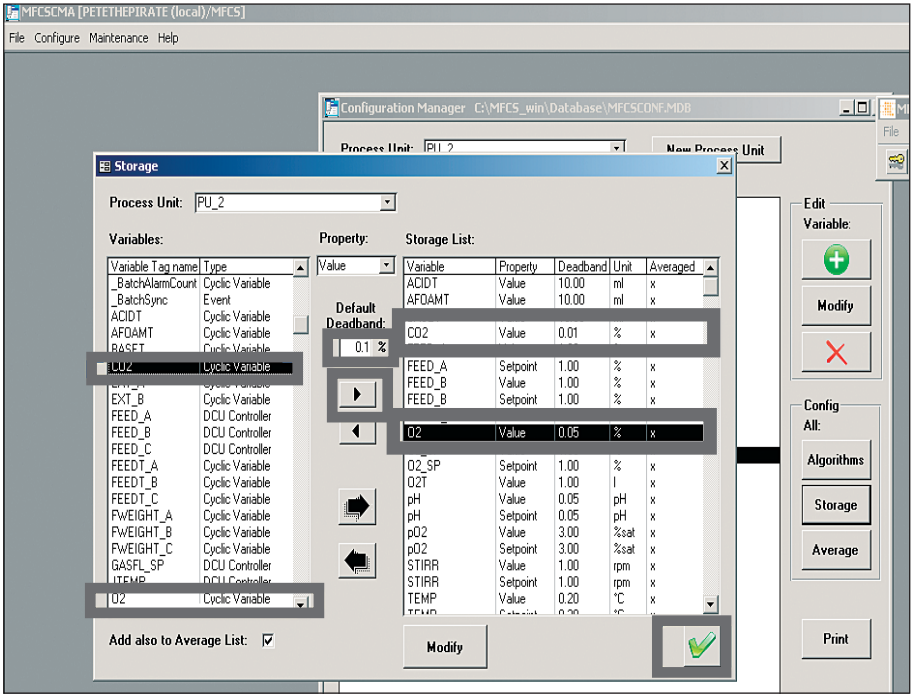
The sensor name (1) can be looked up in the Sensor configuration as described in chapter [➡ 7.4, page 44].

Instead of directly filling in the OPC Tags, an OPC Test Client can be used to browse and then the OPC tags can be filled in with copy & paste.

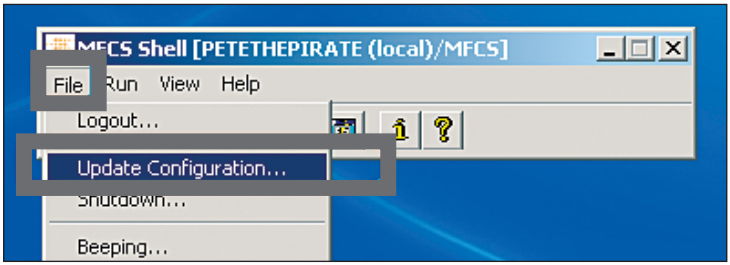
– Refer to chapter [➡ 8.3, page 62].

Adding new variables to Storage list

After the interface configuration is finished, the new variables must be added to the Storage list.



▶ Add the new variables O_2 and CO_2 to the Storage list as shown on the picture above.



▶ Perform "Update Configuration" from the "MFCS/win Shell to finalize the

▶ MFCS/win configuration".

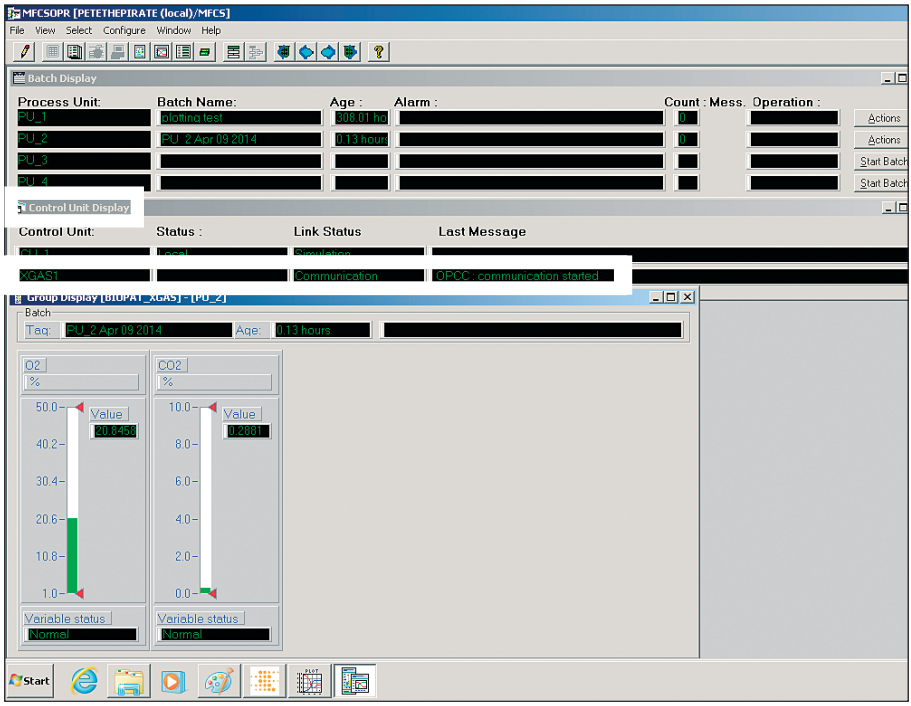


Fig. 10-1: Verification of the communication between MFCS/win and BioPAT® Xgas from the MFCS/win Operator Service Program

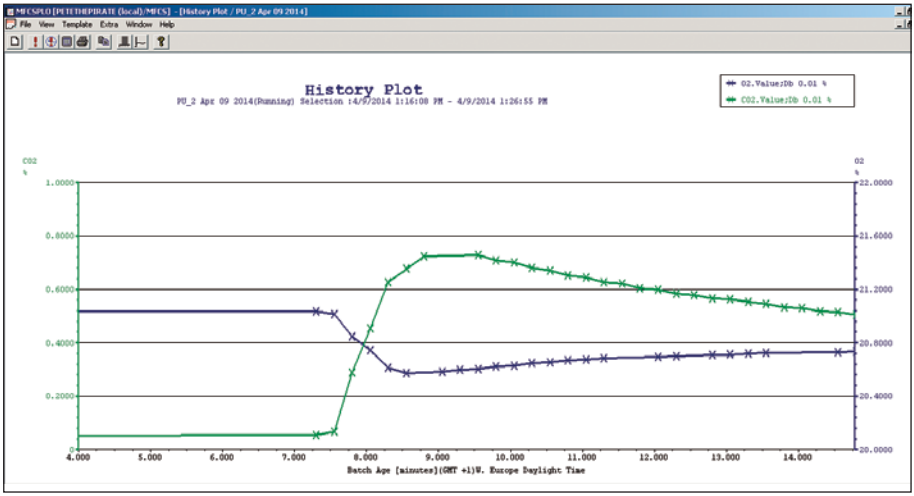


Fig. 10-2: Verification of the communication between MFCS/win and BioPAT® Xgas with the MFCS/win Plotting

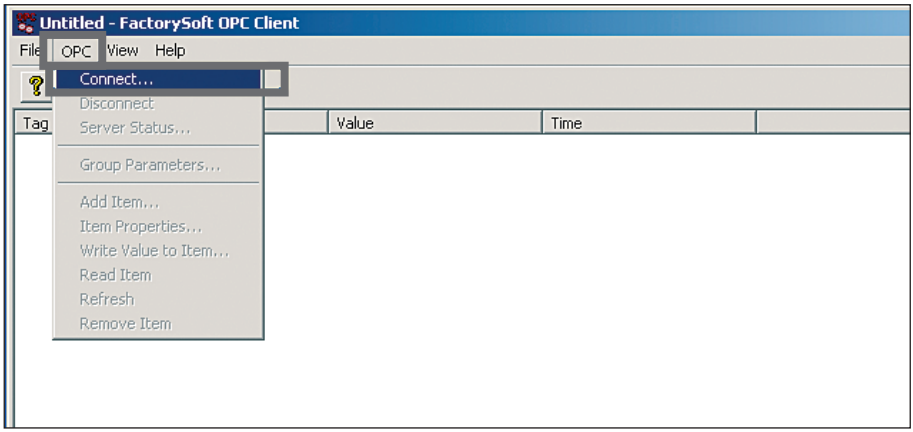
8.3 Browsing the BIOPATXGAS.OPC.1 Server with OPC Test Client

▶ Copy the tool "OPC_Client.exe" to the MFCS/win server computer into directory ":\MFCS_win\Tasks\OPC\".

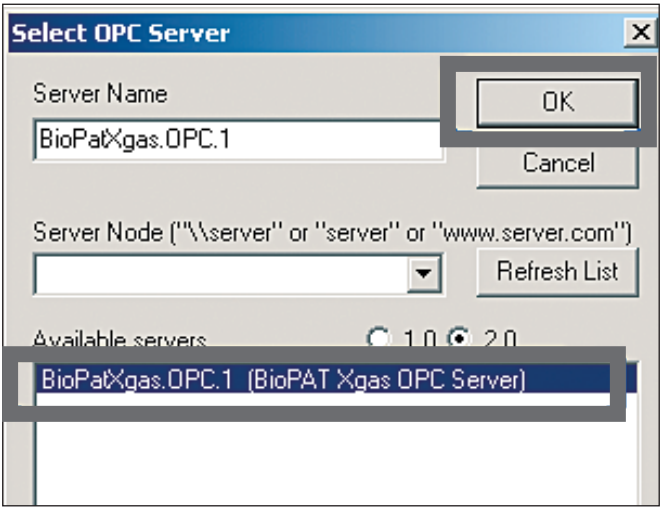
– This tool is available at the BioPAT MFCS/win OPC DA Client CD in directory "<CD-ROM>:\SupportTools".

▶ Start the file "OPC_Client.EXE" at the MFCS/win Server computer.

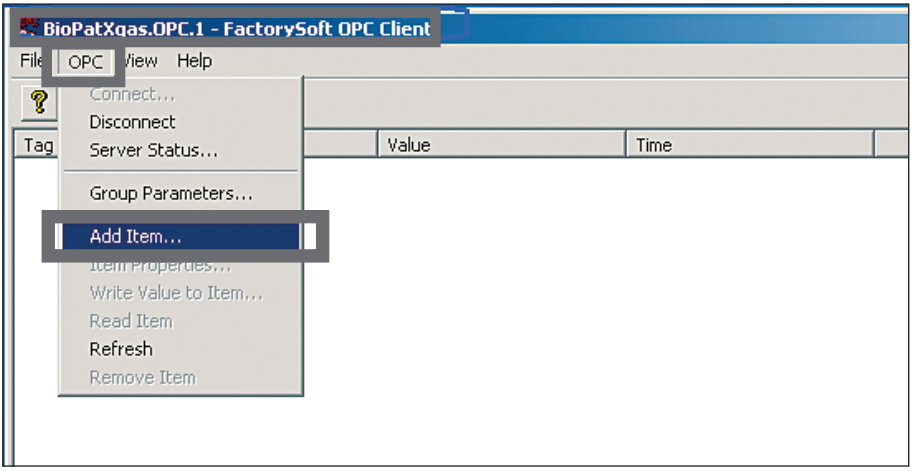
▷ Now the connection to the OPC server can be done, by doing the following steps.



▶ Connect to OPC Server with "OPC / Connect".

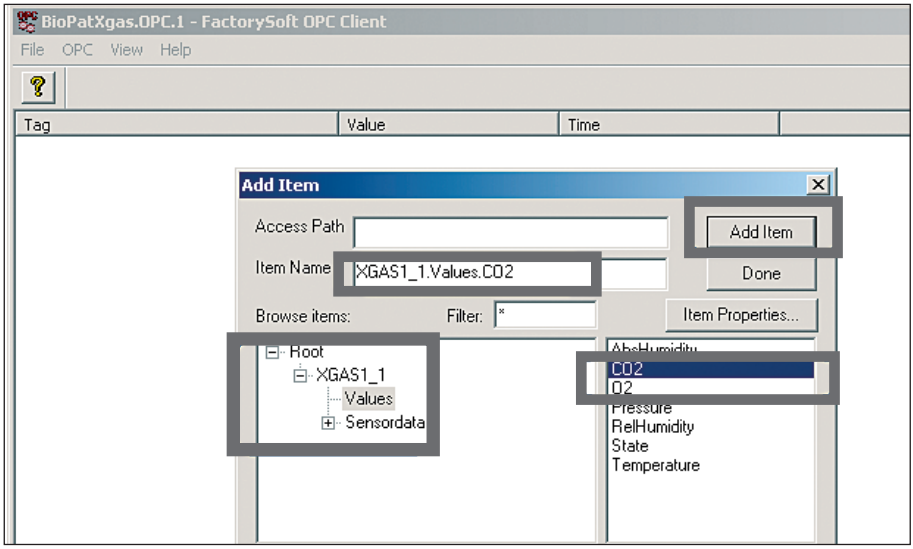


▶ Select the "BioPatXgas.OPC.1" server from the list.



After the Test Client is connected to the BioPATXgas.OPC.1 server, add items.

▶ Click "OPC / Add Item...".

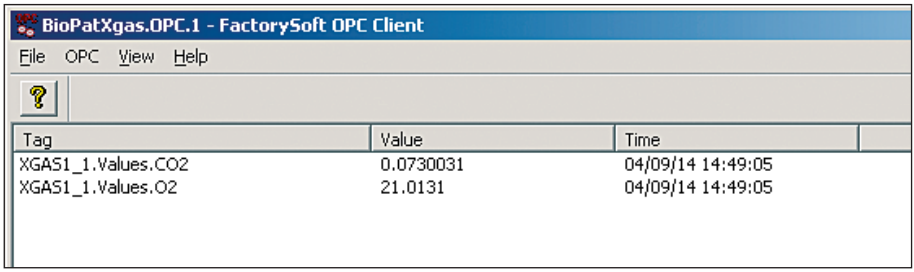


- Browse for O_2 and CO_2.
- Click "Add Item ".

If the CO_2 variable is selected in the list, then the OPC Tag will be shown in the field "Item Name".

This OPC Tag can be transferred with cut & paste to the MFCS/win configuration as shown in section [➡ page 58].

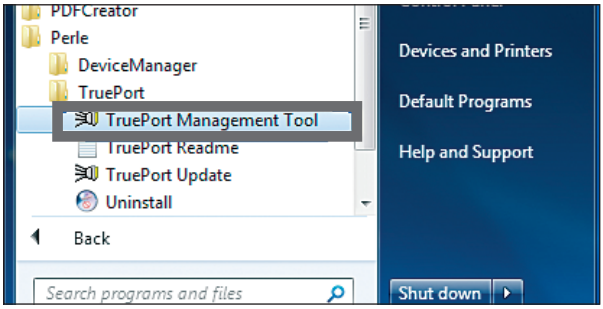
O_2 and CO_2 values in OPC Test Client:



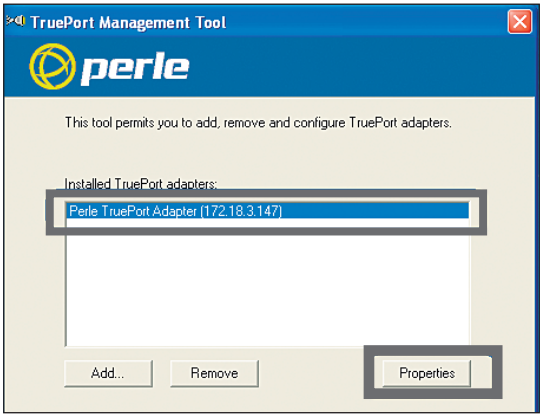
9. Firmware Version

9.1 Checking / Upgrading Firmware Version of the Perle Device

For trouble free operation it is necessary, that the firmware version 4.5 is available in the Perle device. How to check the installed firmware version of the Perle device is described in this chapter.

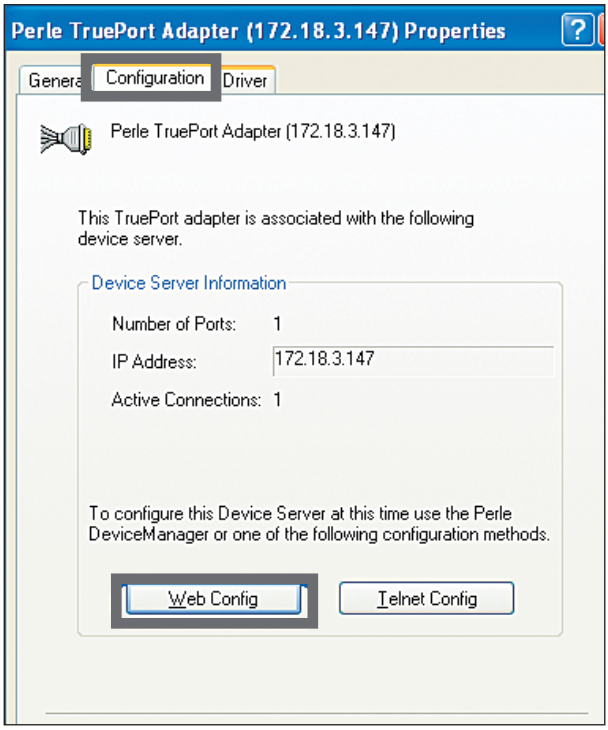


▶ Start the "TruePort ManagementTool" for verification.

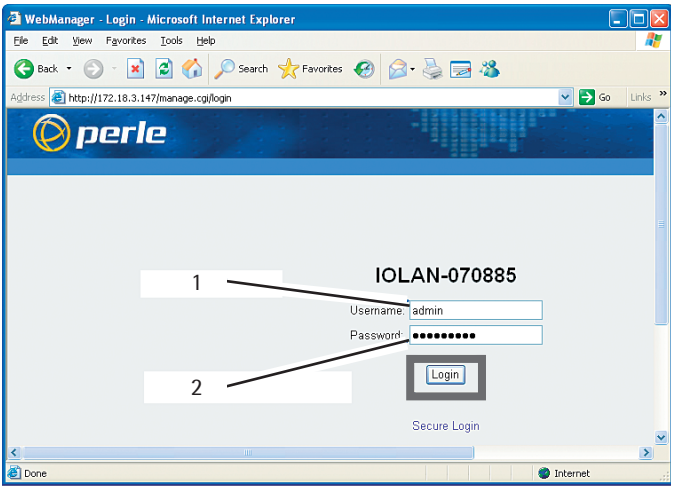


▶ Select the Perle TruePort Adapter in question.

▶ Press the "Properties" button.

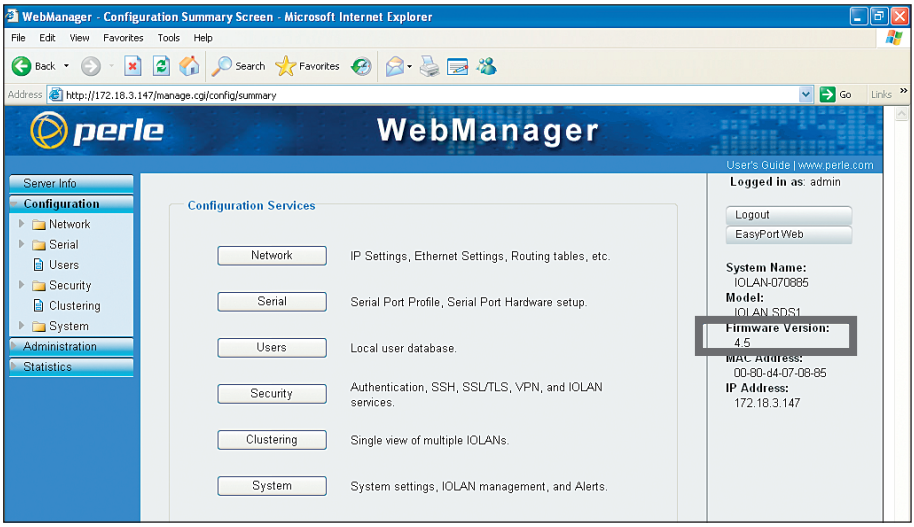

Perle TruePort Adapter (172.18.3.147) Properties
Genera
Configuration
Driver
Perle TruePort Adapter (172.18.3.147)
This TruePort adapter is associated with the following device server.
Device Server Information
Number of Ports: 1
IP Address: 172.18.3.147
Active Connections: 1
To configure this Device Server at this time use the Perle DeviceManager or one of the following configuration methods.
Web Config
Telnet Config

- ▶ Change to register card "Configuration".
- ▶ Press button "Web Config".



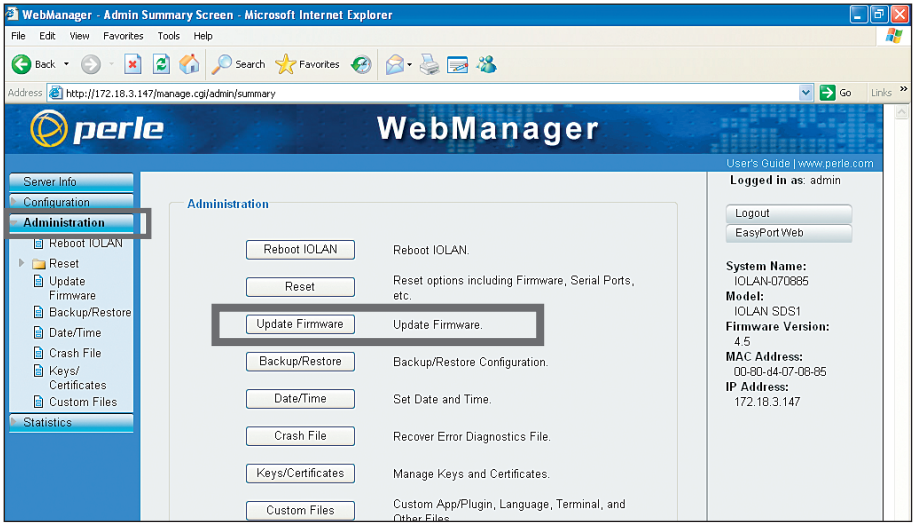
▶ Enter username “admin” (1) and password “superuser” (2).

▶ Press button “Login”.



▷ Informations about the used Perle device are shown on the right side including the installed firmware version.

Updating firmware

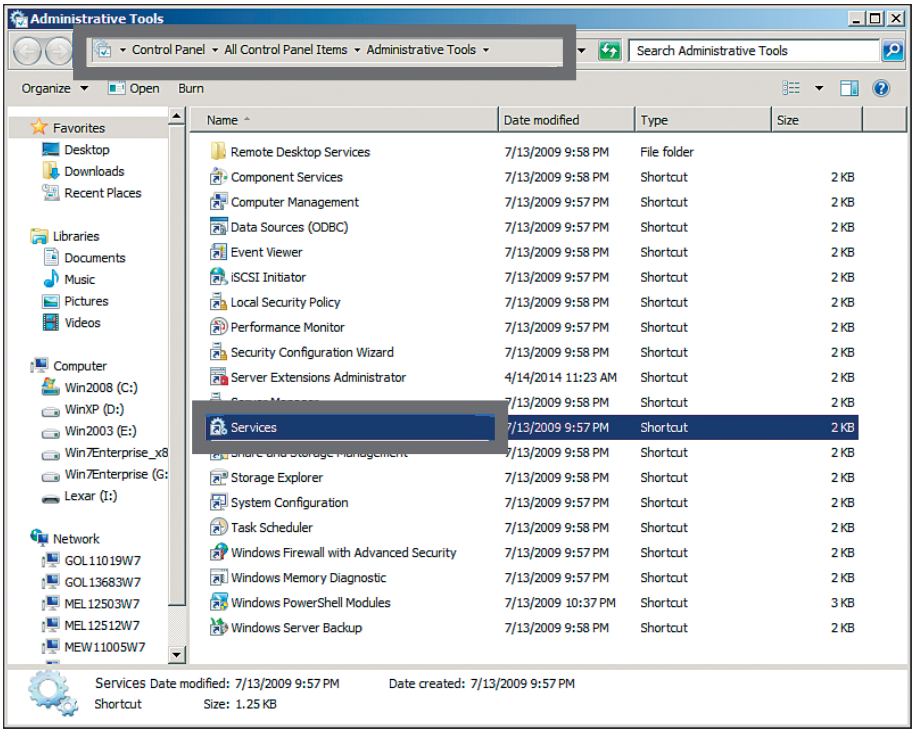


▶ If the installed firmware is below version 4.5, upgrade the firmware version of the Perle device.

– The newest firmware version can always be downloaded from the internet www.perle.com/downloads.

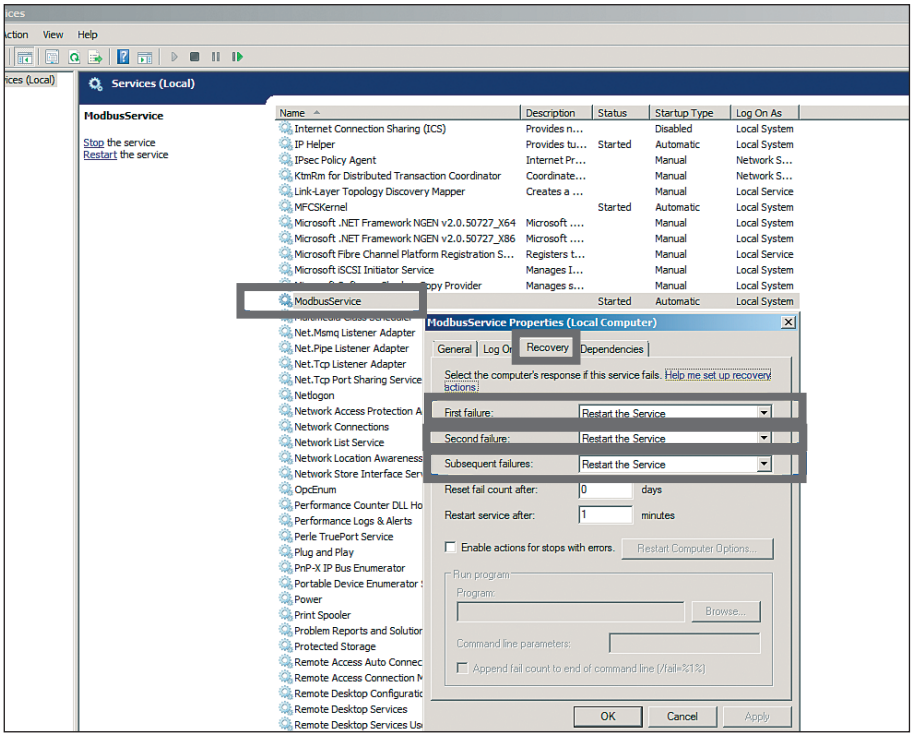
How the firmware will be installed at the Perle device is described in chapter “Downloading IOLAN Firmware” on page 348 in the manual “IOLAN_SCS-SDS-STS_UG_v4.4.pdf”, available on the BioPAT® Xgas VIS CD.

9.2 Configuring Settings for Windows ModbusService


Administrative Tools
Control Panel ▸ All Control Panel Items ▸ Administrative Tools
Search Administrative Tools
Organize
Open
Burn
Favorites
Desktop
Downloads
Recent Places
Libraries
Documents
Music
Pictures
Videos
Computer
Win2008 (C:)
WinXP (D:)
Win2003 (E:)
Win7Enterprise_x8
Win7Enterprise (G:
Lexar (I:)
Network
GOL11019W7
GOL13683W7
MEL12503W7
MEL12512W7
MEW11005W7
Name
Date modified
Type
Size
Remote Desktop Services 7/13/2009 9:58 PM File folder
Component Services 7/13/2009 9:58 PM Shortcut 2 KB
Computer Management 7/13/2009 9:57 PM Shortcut 2 KB
Data Sources (ODBC) 7/13/2009 9:57 PM Shortcut 2 KB
Event Viewer 7/13/2009 9:58 PM Shortcut 2 KB
iSCSI Initiator 7/13/2009 9:57 PM Shortcut 2 KB
Local Security Policy 7/13/2009 9:58 PM Shortcut 2 KB
Performance Monitor 7/13/2009 9:57 PM Shortcut 2 KB
Security Configuration Wizard 7/13/2009 9:58 PM Shortcut 2 KB
Server Extensions Administrator 4/14/2014 11:23 AM Shortcut 2 KB
7/13/2009 9:58 PM Shortcut 2 KB
Services 7/13/2009 9:57 PM Shortcut 2 KB
7/13/2009 9:58 PM Shortcut 2 KB
Storage Explorer 7/13/2009 9:58 PM Shortcut 2 KB
System Configuration 7/13/2009 9:57 PM Shortcut 2 KB
Task Scheduler 7/13/2009 9:58 PM Shortcut 2 KB
Windows Firewall with Advanced Security 7/13/2009 9:57 PM Shortcut 2 KB
Windows Memory Diagnostic 7/13/2009 9:57 PM Shortcut 2 KB
Windows PowerShell Modules 7/13/2009 10:37 PM Shortcut 3 KB
Windows Server Backup 7/13/2009 9:58 PM Shortcut 2 KB
Services Date modified: 7/13/2009 9:57 PM Date created: 7/13/2009 9:57 PM
Shortcut Size: 1.25 KB

▶ Open “Windows Control Panel / All Control Panel Items / Administrative Tools“.

▶ Double click “Services“.



- ▶ Scroll down the list until “ModbusService” appears in the list.
- ▶ Double click “ModbusService” and select register card “Recovery”.
- ▶ Select the setting “Restart the Service” from the drop down list for the three items “First failure”, “Second failure” and “Subsequent failure”.

10. Troubleshooting

If you cannot correct a fault independently, contact:

Sartorius Stedim Systems GmbH
Robert-Bosch-Str. 5-7
D-34302 Guxhagen
Tel. +49 (5665) 407-0
http://www.sartorius-stedim.com
e-mail: mfcs.service@sartorius-stedim.com

Sartorius Stedim Systems GmbH
Robert-Bosch-Strasse 5–7
D-34302 Guxhagen, Germany

Phone +49 (0) 5665-407-0
Fax +49 (0) 5665-407-2200
www.sartorius-stedim.com

Copyright by Sartorius, Guxhagen, Germany.
No part of this publication may be reprinted or translated in any form or by any means without the prior written permission of Sartorius.
All rights reserved by Sartorius in accordance with copyright law.
The information and figures contained in these instructions correspond to the version date specified below.
Sartorius reserves the right to make changes to the technology, features, specifications and design of the equipment without notice.

Status:
July 2014
Sartorius Stedim Systems GmbH, Guxhagen, Germany.

Printed in the EU on paper bleached without chlorine. | NT
Publication No.: SBI6018-e140701